

The Weill Cornell Neck Pain Appropriate Use Criteria (AUC) addresses nine clinical conditions common to patients presenting with Neck Pain and makes recommendations to optimize diagnostic effectiveness.

Common Clinical Conditions	
0	Not Neck Pain
1	Neck Pain, Compression Fracture - Known or Suspected, No Trauma
2	Neck Pain, Greater than 6 weeks, No Additional Pathology
3	Neck Pain, History of C-Spine Surgery
4	Neck Pain, Infection - Known or Suspected
5	Neck Pain, Neck Trauma, NEXUS criteria met Low Risk for C-Spine Fracture
6	Neck Pain, Neck Trauma, NEXUS criteria not met, High Risk for C-Spine Fracture
7	Neck Pain, Neoplasm - Known or Suspected
8	Neck Pain, Neurologic Impairment
9	Neck Pain, Patient Age less than 18

The Neck Pain AUC is activated when a user orders one of the following twelve Advanced Imaging Procedures.

Advanced Imaging Procedures	
1	CT Cervical Spine without Contrast
2	CT Cervical Spine with Contrast
3	CT Cervical Spine with and without Contrast
4	MR Cervical Spine without contrast
5	MR Cervical Spine with Contrast
6	MR Cervical Spine with and Without Contrast
7	CT Neck Soft Tissue without Contrast
8	CT Neck Soft Tissue with Contrast
9	CT Neck Soft Tissue with and without Contrast
10	MR Neck without Contrast
11	MR Neck with Contrast
12	MR Neck with and without Contrast

The Neck Pain AUC recommends one of the following fourteen Imaging Procedures based on the clinical condition.

Recommended Imaging Procedures	
1	CT Cervical Spine without Contrast
2	CT Cervical Spine with Contrast
3	CT Cervical Spine with and without Contrast
4	MR Cervical Spine without contrast
5	MR Cervical Spine with Contrast
6	MR Cervical Spine with and Without Contrast
7	CT Neck Soft Tissue without Contrast
8	CT Neck Soft Tissue with Contrast
9	CT Neck Soft Tissue with and without Contrast
10	MR Neck without Contrast
11	MR Neck with Contrast
12	MR Neck with and without Contrast
13	XR Cervical Spine

## Nexus Criteria

The Neck Pain AUC logic utilizes five Nexus Criteria.

Cervical Spine radiography is indicated for patients with neck trauma unless they meet all the Nexus Criteria

NEXUS Criteria	
1	No Posterior Midline Cervical-Spine Tenderness
2	No Evidence of Intoxication
3	A Normal Level of Alertness (15 on the Glasgow Coma Scale)
4	No Focal Neurologic Deficit
5	No Painful Distracting Injuries

## Logic Tables

The following Clinical Condition Logic Tables provide the Neck Pain AUC logic for each clinical condition.

The logic incorporates prior imaging studies and contrast contraindications where applicable.

### Key

Value	Score
Blank	No Score Assigned
0	AUC Not Applicable – Allows User to Proceed with Original Order
1	Inappropriate
2	Contact Radiology
3	Appropriate
4	Appropriate Preferred

### Condition 0 – Not Neck Pain - AUC Logic Activated, AUC Not Applicable

Condition	CT C-Spine wo	CT C-Spine w	CT C-Spine wwo	MR C-Spine wo	MR C-Spine w	MR C-Spine wwo	XR C-Spine	CT Neck wo	CT Neck w	CT Neck wwo	MR Neck wo	MR Neck w	MR Neck wwo	Reference
Not for neck pain	0	0	0	0	0	0		0	0	0	0	0	0	2

**Condition 1 - Neck Pain, Compression Fracture - Known or Suspected, No Trauma**

Condition	Priors	Contraindications	CT C-Spine wo	CT C-Spine w	CT C-Spine wwo	MR C-Spine wo	MR C-Spine w	MR C-Spine wwo	XR C-Spine	CT Neck wo	CT Neck w	CT Neck wwo	MR Neck wo	MR Neck w	MR Neck wwo	Reference
Neck Pain, Compression Fracture - Known or Suspected, No Trauma			1	1	1	1	1	1	4	1	1	1	1	1	1	LBP
Neck Pain, Compression Fracture - Known or Suspected, No Trauma	XR		4	1	1	3	1	1		1	1	1	1	1	1	
Neck Pain, Compression Fracture - Known or Suspected, No Trauma	XR	MR	4	1	1	1	1	1		1	1	1	1	1	1	

**Condition 2 - Neck Pain, Greater than 6 weeks, No Additional Pathology**

Condition	Contraindications	CT C-Spine wo	CT C-Spine w	CT C-Spine wwo	MR C-Spine wo	MR C-Spine w	MR C-Spine wwo	XR C-Spine	CT Neck wo	CT Neck w	CT Neck wwo	MR Neck wo	MR Neck w	MR Neck wwo	Reference
Neck Pain > 6 weeks no Additional Pathology		1	1	1	4	1	1		1	1	1	1	1	1	1, LBP
Neck Pain > 6 weeks no Additional Pathology	MR	4	1	1	1	1	1		1	1	1	1	1	1	

**Condition 3 – Neck Pain, History of C-Spine Surgery**

Condition	CT C-Spine wo	CT C-Spine w	CT C-Spine wwo	MR C-Spine wo	MR C-Spine w	MR C-Spine wwo	XR C-Spine	CT Neck wo	CT Neck w	CT Neck wwo	MR Neck wo	MR Neck w	MR Neck wwo	Reference
Neck Pain Hx of C-Spine Surgery	0	0	0	0	0	0		0	0	0	0	0	0	LBP

**Condition 4 – Neck Pain, Infection - Known or Suspected**

Condition	Contraindications	CT C-Spine wo	CT C-Spine w	CT C-Spine wwo	MR C-Spine wo	MR C-Spine w	MR C-Spine wwo	XR C-Spine	CT Neck wo	CT Neck w	CT Neck wwo	MR Neck wo	MR Neck w	MR Neck wwo	Reference
Neck Pain, Infection - Known or Suspected		3	3	1	3	1	4		1	1	1	1	1	1	1, LBP
Neck Pain, Infection - Known or Suspected	GAD	3	3	1	4	1	1		1	1	1	1	1	1	
Neck Pain, Infection - Known or Suspected	IOD	3	1	1	3	1	4		1	1	1	1	1	1	
Neck Pain, Infection - Known or Suspected	MR	4	3	1	1	1	1		1	1	1	1	1	1	
Neck Pain, Infection - Known or Suspected	GAD IOD	3	1	1	4	1	1		1	1	1	1	1	1	
Neck Pain, Infection - Known or Suspected	MR IOD	4	1	1	1	1	1		1	1	1	1	1	1	

**Condition 5 – Neck Pain, Neck Trauma, NEXUS criteria met Low Risk for C-Spine Fracture**

Condition	CT C-Spine wo	CT C-Spine w	CT C-Spine wwo	MR C-Spine wo	MR C-Spine w	MR C-Spine	XR C-Spine	CT Neck wo	CT Neck w	CT Neck wwo	MR Neck wo	MR Neck w	MR Neck wwo	Reference
Neck pain, Neck Trauma, NEXUS criteria met (Low Risk for C-Spine Fracture)	1	1	1	1	1	1		1	1	1	1	1	1	2

**Condition 6 – Neck Pain, Neck Trauma, NEXUS criteria not met, High Risk for C-Spine Fracture**

Condition	Contraindications	CT C-Spine wo	CT C-Spine w	CT C-Spine wwo	MR C-Spine wo	MR C-Spine w	MR C-Spine wwo	XR C-Spine	CT Neck wo	CT Neck w	CT Neck wwo	MR Neck wo	MR Neck w	MR Neck wwo	Reference
Neck Pain, Neck Trauma, NEXUS criteria not met - High Risk for C-Spine Fracture		4	1	1	3	1	1	4	1	1	1	1	1	1	2
Neck Pain, Neck Trauma, NEXUS criteria not met - High Risk for C-Spine Fracture	MR	4	1	1	1	1	1	4	1	1	1	1	1	1	

**Condition 7 – Neck Pain, Neoplasm - Known or Suspected**

Condition	Contraindications	CT C-Spine wo	CT C-Spine w	CT C-Spine wwo	MR C-Spine wo	MR C-Spine w	MR C-Spine wwo	XR C-Spine	CT Neck wo	CT Neck w	CT Neck wwo	MR Neck wo	MR Neck w	MR Neck wwo	Reference
Neck Pain, Neoplasm, Known or Suspected		3	3	1	3	1	4		1	1	1	1	1	1	1, LBP
Neck Pain, Neoplasm, Known or Suspected	GAD	3	3	1	4	1	1		1	1	1	1	1	1	
Neck Pain, Neoplasm, Known or Suspected	IOD	3	1	1	3	1	4		1	1	1	1	1	1	
Neck Pain, Neoplasm, Known or Suspected	MR	4	3	1	1	1	1		1	1	1	1	1	1	
Neck Pain, Neoplasm, Known or Suspected	GAD IOD	3	1	1	4	1	1		1	1	1	1	1	1	
Neck Pain, Infection - Known or Suspected	MR IOD	4	1	1	1	1	1		1	1	1	1	1	1	

**Condition 8 – Neck Pain, Neurologic Impairment**

Condition	Contraindications	CT C-Spine wo	CT C-Spine w	CT C-Spine wwo	MR C-Spine wo	MR C-Spine w	MR C-Spine wwo	XR C-Spine	CT Neck wo	CT Neck w	CT Neck wwo	MR Neck wo	MR Neck w	MR Neck wwo	Reference
Neck Pain, Neurologic Impairment		1	1	1	4	1	1		1	1	1	1	1	1	1, LBP
Neck Pain, Neurologic Impairment	MR	4	4	1	1	1	1		1	1	1	1	1	1	
Neck Pain, Neurologic Impairment	MR IOD	4	1	1	1	1	1		1	1	1	1	1	1	

**Condition 9 – Neck Pain, Patient Age less than 18**

Condition	CT C-Spine wo	CT C-Spine w	CT C-Spine wwo	MR C-Spine wo	MR C-Spine w	MR C-Spine	XR C-Spine	CT Neck wo	CT Neck w	CT Neck wwo	MR Neck wo	MR Neck w	MR Neck wwo	Reference
Patient < 18 years	0	0	0	0	0	0		0	0	0	0	0	0	LBP

## Sources

The Neck Pain AUC has been developed by Weill Cornell Medicine utilizing the following published sources and Local Best Practices (LBP).

No.	Source
1	An approach to neck pain for the family physician, Teichtahl AJ, McColl G, An approach to neck pain for the family physician, Australian Family Physician 46(11), 2013. <a href="https://www.ncbi.nlm.nih.gov/pubmed/24217096">https://www.ncbi.nlm.nih.gov/pubmed/24217096</a>
2	Validity of a set of clinical criteria to rule out injury to the cervical Spine in patients with blunt trauma, Hoffman JR et al, Validity of a set of clinical criteria to rule out injury to the cervical Spine in patients with blunt trauma, National Emergency X-Radiography Utilization Study Group. N Engl J Med. 2000 Jul 13;343(2):94-9. <a href="https://www.ncbi.nlm.nih.gov/pubmed/10891516">https://www.ncbi.nlm.nih.gov/pubmed/10891516</a>
LBP	Weill Cornell Medicine Local Best Practice