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

Common Clinical Conditions – Low Back Pain	
0	Not Lumbar Pain
1	Fracture Known or Suspected, High Energy Trauma
2	Fracture Known or Suspected, No High Energy Trauma
3	History of Lumbar Spine Surgery
4	Infection, Known or Suspected
5	Low Back Pain, 6 weeks or more, No Additional Pathology
6	Low Back Pain, less than 6 weeks, No Additional Pathology
7	Neoplasm Known or Suspected
8	Neurologic Impairment

The Low Back Pain AUC is activated when a user orders one of the following six Advanced Imaging Procedures.

Advanced Imaging Procedures	
1	CT Lumbar Spine with Contrast
2	CT Lumbar Spine without Contrast
3	CT Lumbar Spine with and without Contrast
4	MR Lumbar Spine with Contrast
5	MR Lumbar Spine without Contrast
6	MR Lumbar Spine with and without Contrast

The Low Back Pain AUC recommends one of the following seven Imaging Procedures based on the clinical condition.

Advanced Imaging Procedures	
1	CT Lumbar Spine with Contrast
2	CT Lumbar Spine without Contrast
3	CT Lumbar Spine with and without Contrast
4	MR Lumbar Spine with Contrast
5	MR Lumbar Spine without Contrast
6	MR Lumbar Spine with and without Contrast
7	XR Lumbar Spine

Logic Tables

The following Clinical Condition Logic Tables provide the Low Back Pain AUC logic for each clinical condition. The logic includes priors, contraindications, metal reduction and advanced US techniques where applicable.

Key

Value	Score
Blank	No Score Assigned
0	AUC Not Applicable
1	Inappropriate
2	Contact Radiology
3	Appropriate
4	Appropriate Preferred

Advice Text

The Advice Text provided in each condition is for Ordering Provider information and education purposes.

Condition 0 – Not Hip Pain AUC Logic Activated, AUC Not Applicable

Condition	CT Lumbar Spine WO	CT Lumbar Spine W	CT Lumbar Spine WWO	MR Lumbar Spine WO	MR Lumbar Spine W	MR Lumbar Spine WWO	XR Lumbar Spine	Reference
Not for Low Back Pain	0	0	0	0	0	0		NA

Condition 0 - Advice Text

Not covered by guidelines.

Condition 1 - Fracture Known or Suspected, High Energy Trauma

Condition	Contraindications	CT Lumbar Spine WO	CT Lumbar Spine W	CT Lumbar Spine WWO	MR Lumbar Spine WO	MR Lumbar Spine W	MR Lumbar Spine WWO	XR Lumbar Spine	Reference	Advice Text
Fracture Known or Suspected, High Energy Trauma		4	1	1	4	1	1	4	3,4,5	a
Fracture Known or Suspected, High Energy Trauma	MR	4	1	1	1	1	1	4		b

Condition 1 - Advice Text

a	CT without contrast, MR without contrast, or X-rays preferred for low back pain in the context of high-energy trauma.
b	CT without contrast or X-rays preferred for low back pain in the context of high-energy trauma.

Condition 2 - Fracture Known or Suspected, No High Energy Trauma

Condition	Priors	Contraindications	CT Lumbar Spine WO	CT Lumbar Spine W	CT Lumbar Spine WWO	MR Lumbar Spine WO	MR Lumbar Spine W	MR Lumbar Spine WWO	XR Lumbar Spine	Reference	Advice Text
Fracture Known or Suspected No High Energy Trauma	No XR		1	1	1	1	1	1	4	3,4,5	a
Fracture Known or Suspected No High Energy Trauma	XR		4	1	1	3	1	1			b
Fracture Known or Suspected No High Energy Trauma	XR	MR	4	1	1	1	1	1			c
Fracture Known or Suspected No High Energy Trauma	XR	CT	1	1	1	4	1	1			d
Fracture Known or Suspected No High Energy Trauma	XR	MR CT	2	2	2	2	2	2			e

Condition 1 - Advice Text

a	Lumbar spine radiographs are preferred as the initial exam for suspected vertebral fracture.
b	CT without contrast preferred for follow up of low back pain with suspected fracture.
c	CT without contrast preferred for follow up of low back pain with suspected fracture.
d	MR without contrast preferred for follow up of low back pain with suspected fracture in patients with contraindication to CT.
e	Please call radiology. Patients with low back pain with suspected fracture with contraindication to MR and CT should be reviewed with a radiologist.

Condition 3 – History of Lumbar Spine Surgery

Condition	Contraindications	CT Lumbar Spine WO	CT Lumbar Spine W	CT Lumbar Spine WWO	MR Lumbar Spine WO	MR Lumbar Spine W	MR Lumbar Spine WWO	XR Lumbar Spine	Reference	Advice Text
History of Lumbar Spine Surgery		3	1	1	3	1	4		7, 10, LBP	a
History of Lumbar Spine Surgery	GAD	3	1	1	4	1	1			b
History of Lumbar Spine Surgery	MR	4	1	1	1	1	1			c
History of Lumbar Spine Surgery	CT	1	1	1	3	1	4			d
History of Lumbar Spine Surgery	GAD, CT	1	1	1	4	1	1			e
History of Lumbar Spine Surgery	MR, CT	2	2	2	2	2	2			f

Condition 3 - Advice Text

a	MR with and without contrast preferred for low back pain in patients with history of lumbar surgery.
b	MR without contrast preferred for low back pain in patients with history of lumbar surgery and contraindication to gadolinium.
c	CT without contrast preferred for low back pain in patients with history of lumbar surgery and contraindication to MR.
d	MR with and without contrast preferred for low back pain in patients with history of lumbar surgery.
e	MR without contrast preferred for low back pain in patients with history of lumbar surgery and contraindication to gadolinium.
f	Please call radiology. Patients with history of lumbar surgery and contraindication to MR and CT should be reviewed with a radiologist.

Condition 4 – Infection, Known or Suspected

Condition	Contraindications	CT Lumbar Spine WO	CT Lumbar Spine W	CT Lumbar Spine WWO	MR Lumbar Spine WO	MR Lumbar Spine W	MR Lumbar Spine WWO	XR Lumbar Spine	Reference	Advice Text
Infection, Known or Suspected		3	3	1	3	1	4		6,7	a
Infection, Known or Suspected	GAD	3	3	1	4	1	1			b
Infection, Known or Suspected	MR	3	4	1	1	1	1			c
Infection, Known or Suspected	IOD	3	1	1	3	1	4			d
Infection, Known or Suspected	CT	1	1	1	3	1	4			e
Infection, Known or Suspected	GAD, IOD	3	1	1	4	1	1			f
Infection, Known or Suspected	GAD, CT	1	1	1	4	1	1			g
Infection, Known or Suspected	MR, IOD	4	1	1	1	1	1			h
Infection, Known or Suspected	MR, CT	2	2	2	2	2	2			i

Condition 4 - Advice Text

a	MR without and with contrast preferred for low back pain with suspected infection-cancer.
b	MR without contrast preferred for low back pain with suspected infection-cancer in patients with contraindication to gadolinium.
c	CT with contrast preferred for low back pain with suspected infection-cancer in patients with contraindication to MR.
d	MR without and with contrast preferred for low back pain with suspected infection-cancer and contraindication to iodinating contrast.
e	MR without and with contrast preferred for low back pain with suspected infection-cancer.
f	MR without contrast preferred for low back pain with suspected infection-cancer in patients with contraindication to gadolinium and iodinating contrast.
g	MR without contrast preferred for low back pain with suspected infection-cancer in patients with contraindication to CT and gadolinium.
h	CT without contrast preferred low back pain with suspected infection-cancer in patients with contraindication to MR and iodinated contrast.
i	Please call radiology. Patients with low back pain with suspected infection-cancer with contraindication to MR and CT should be reviewed with a radiologist.

Condition 5 – Low Back Pain, 6 weeks or more, No Additional Pathology

Condition	Contraindications	CT Lumbar Spine WO	CT Lumbar Spine W	CT Lumbar Spine WWO	MR Lumbar Spine WO	MR Lumbar Spine W	MR Lumbar Spine WWO	XR Lumbar Spine	Reference	Advice Text
Low Back Pain, 6 weeks or more, No Additional Pathology		3	1	1	4	1	1		1,2,11	a
Low Back Pain, 6 weeks or more, No Additional Pathology	MR	4	1	1	1	1	1			b
Low Back Pain, 6 weeks or more, No Additional Pathology	CT	1	1	1	4	1	1			c
Low Back Pain, 6 weeks or more, No Additional Pathology	MR, CT	2	2	2	2	2	2			d

Condition 5 - Advice Text

a	MR without contrast preferred for low back pain that persists for more than 6 weeks.
b	CT without contrast preferred for low back pain that persists for more than 6 weeks in patients with contraindication to MR.
c	MR without contrast preferred for low back pain that persists for more than 6 weeks.
d	Please call radiology. Patients with low back pain that persists for more than 6 weeks with contraindication to MR and CT should be reviewed with a radiologist.

Condition 6 – Low Back Pain, less than 6 weeks, No Additional Pathology

Condition	CT Lumbar Spine WO	CT Lumbar Spine W	CT Lumbar Spine WWO	MR Lumbar Spine WO	MR Lumbar Spine W	MR Lumbar Spine WWO	XR Lumbar Spine	Reference
Low back pain for less than 6 weeks, no signs of additional pathology	1	1	1	1	1	1		1,2,11

Condition 6 - Advice Text

Based on the history provided, imaging not recommended. Conservative treatment recommended for low back pain within 6 weeks in the absence of red flag conditions.

Condition 7 – Neoplasm Known or Suspected

Condition	Contraindications	CT Lumbar Spine WO	CT Lumbar Spine W	CT Lumbar Spine WWO	MR Lumbar Spine WO	MR Lumbar Spine W	MR Lumbar Spine WWO	XR Lumbar Spine	Reference	Advice Text
Neoplasm, Known or Suspected		3	3	1	3	1	4		9	a
Neoplasm, Known or Suspected	GAD	3	3	1	4	1	1			b
Neoplasm, Known or Suspected	MR	3	4	1	1	1	1			c
Neoplasm, Known or Suspected	IOD	3	1	1	3	1	4			d
Neoplasm, Known or Suspected	CT	1	1	1	3	1	4			e
Neoplasm, Known or Suspected	GAD, IOD	3	1	1	4	1	1			f
Neoplasm, Known or Suspected	GAD, CT	1	1	1	4	1	1			g
Neoplasm, Known or Suspected	MR, IOD	4	1	1	1	1	1			h
Neoplasm, Known or Suspected	MR, CT	2	2	2	2	2	2			i

Condition 7 - Advice Text

a	MR without and with contrast preferred for low back pain with suspected infection-cancer.
b	MR without contrast preferred for low back pain with suspected infection-cancer in patients with contraindication to gadolinium.
c	CT with contrast preferred for low back pain with suspected infection-cancer in patients with contraindication to MR.
d	MR without and with contrast preferred for low back pain with suspected infection-cancer and contraindication to iodinating contrast.
e	MR without and with contrast preferred for low back pain with suspected infection-cancer.
f	MR without contrast preferred for low back pain with suspected infection-cancer in patients with contraindication to gadolinium and iodinating contrast.
g	MR without contrast preferred for low back pain with suspected infection-cancer in patients with contraindication to CT and gadolinium.
h	CT without contrast preferred low back pain with suspected infection-cancer in patients with contraindication to MR and iodinated contrast.
i	Please call radiology. Patients with low back pain with suspected infection-cancer with contraindication to MR and CT should be reviewed with a radiologist.

Condition 8 – Neurologic Impairment

Condition	Contraindications	CT Lumbar Spine WO	CT Lumbar Spine W	CT Lumbar Spine WWO	MR Lumbar Spine WO	MR Lumbar Spine W	MR Lumbar Spine WWO	XR Lumbar Spine	Reference	Advice Text
Neurologic Impairment		3	1	1	4	1	1		1,2,11	a
Neurologic Impairment	MR	4	1	1	1	1	1			b
Neurologic Impairment	CT	1	1	1	4	1	1			c
Neurologic Impairment	MR, CT	2	2	2	2	2	2			d

Condition 8 - Advice Text

a	MR without contrast preferred for low back pain with neurological deficit.
b	CT without contrast preferred for low back pain and neurological deficit in patients with contraindication to MR.
c	MR without contrast preferred for low back pain with neurological deficit.
d	Please call radiology. Patients with low back pain and neurologic deficit with contraindication to MR and CT should be reviewed with a radiologist.

Sources

The Low Back Pain AUC has been developed by Weill Cornell Medicine utilizing the following twelve sources.

No.	Source	Score
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10	Jinkins JR, Van Goethem JW. The postsurgical lumbosacral spine. Magnetic resonance imaging evaluation following intervertebral disk surgery, surgical decompression, intervertebral bony fusion, and spinal instrumentation. Radiol Clin North Am. 2001 Jan. https://pubmed.ncbi.nlm.nih.gov/11221501/	5
11	Siemund R, Thurnher M, Sundgren PC. How to image patients with spine pain. Eur J Radiol. 2015 May. https://pubmed.ncbi.nlm.nih.gov/25048978/	5
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