Axial Spondyloarthritis: Disease State

Module 1 | **Defining and Diagnosing axSpA**

Module 2 | **Pathogenesis, Clinical Presentation, and Disease Burden**

Module 3 | **axSpA Disease Assessments**

Module 4 | **axSpA Disease Management**

Module 1

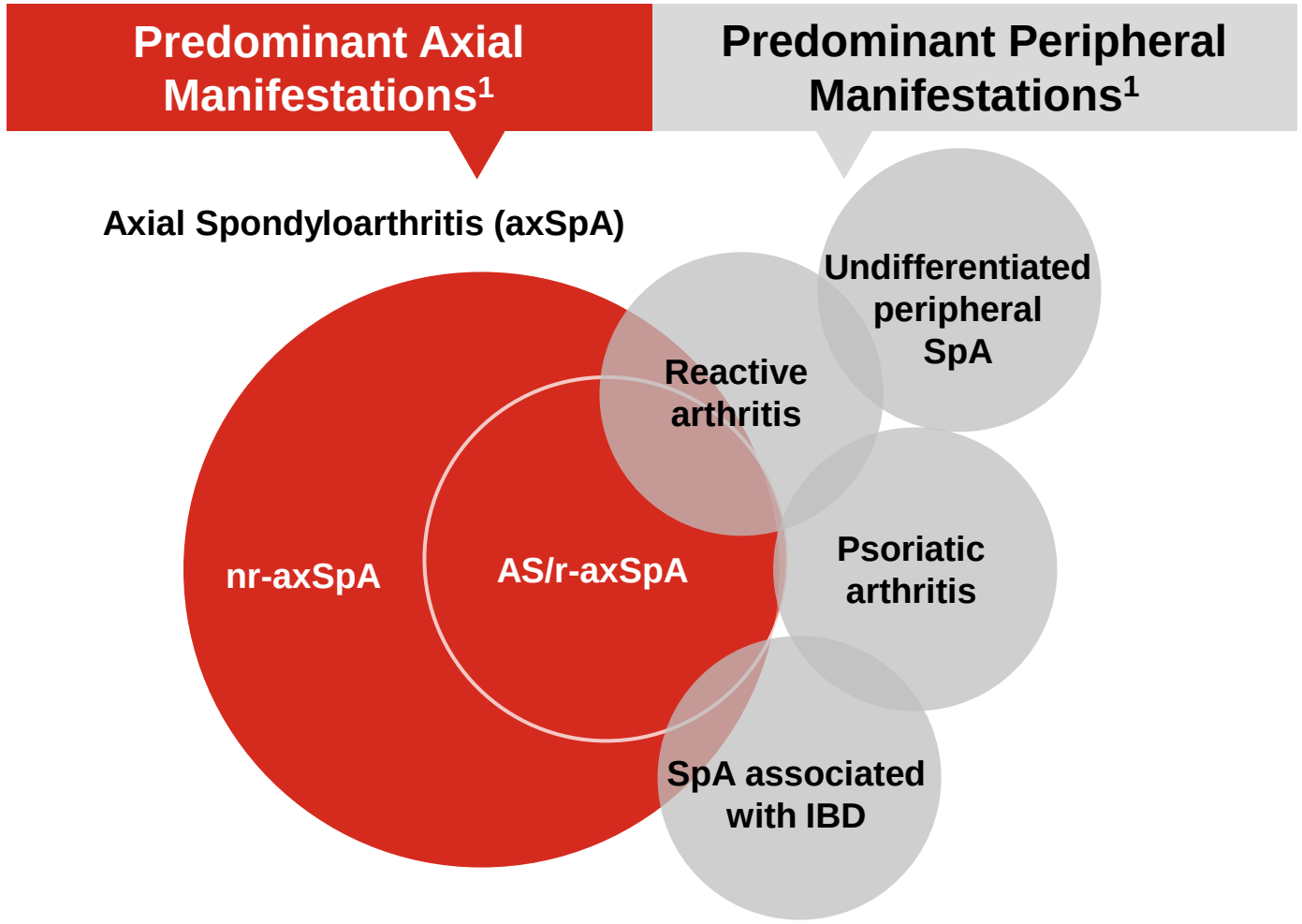
Defining and Diagnosing axSpA

Learning Objectives

- Describe the two sub-types of axSpA disease (AS/r-axSpA and nr-axSpA).
- Differentiate between classification criteria and diagnosis.
- Describe classification criteria for AS/axSpA and nr-axSpA.
- Describe diagnosis of axSpA (AS and nr-axSpA) in clinical practice.
- Explain the challenges of diagnosis in axSpA (AS and nr-axSpA).

AS=Ankylosing Spondylitis; axSpA=Axial Spondyloarthritis; nr-axSpA=Nonradiographic Axial Spondyloarthritis; r-axSpA=Radiographic Axial Spondyloarthritis.

axSpA Belongs to the Spectrum of Spondyloarthropathies



The spectrum of SpA and overlap (cross-sectional and longitudinal) between different SpA forms.[1,2]

Note: A larger circle does not imply a greater prevalence.

AS=Ankylosing Spondylitis; IBD=Inflammatory Bowel Disease; nr-axSpA=Nonradiographic Axial Spondyloarthritis; r-axSpA=Radiographic Axial Spondyloarthritis; SpA=Spondyloarthritis.

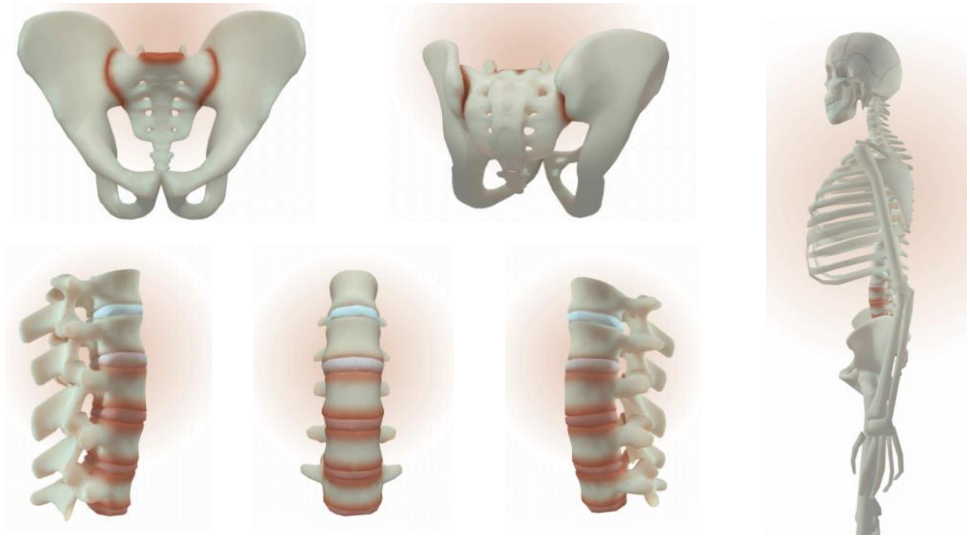
1. Proft F and Poddubnyy D. *Ther Adv Musculoskel Dis.* 2018;10(5-6):129-139. 2. Terenzi R, et al. *Clin Exp Rheumatol.* 2018;36(1):1-14.

Axial Spondyloarthritis (axSpA)

axSpA is a chronic inflammatory disease of the sacroiliac (SI) joint and axial skeleton that can progress to spinal fusion.[1]

- It may also involve peripheral joints (hips, shoulders), entheses and digits, and extra-articular organs (intestines, skin, eyes, lung, and heart).[1]

Early SIJ/Spine Abnormalities



- Abnormalities include inflammation, such as bone marrow edema, and small localized areas of erosion in the SIJs.[2,3]
- Inflammatory changes may not be obvious via x-ray. MRI is better suited to detect abnormalities.[2,3]

Late SIJ/Spine Abnormalities

- Spine abnormalities include bridging syndesmophytes and fused facet joints, as well as partial or complete bone fusion of the SIJ (ankylosis).[2,3]
- Structural changes can be seen via x-ray.[2,3]

axSpA=Axial Spondyloarthritis; MRI=Magnetic Resonance Imaging; SIJ=Sacroiliac Joint.

1. van der Heijde D. In: *Primer on the Rheumatic Diseases*. 2008:193-199. 2. Van Mechelen M, et al. *Calcif Tissue Int.* 2018;102(5):547-558. 3. Østergaard M, et al. *Ther Adv Musculoskel Dis.* 2012;4(4):301-311.

Epidemiology

Prevalence of HLA-B27

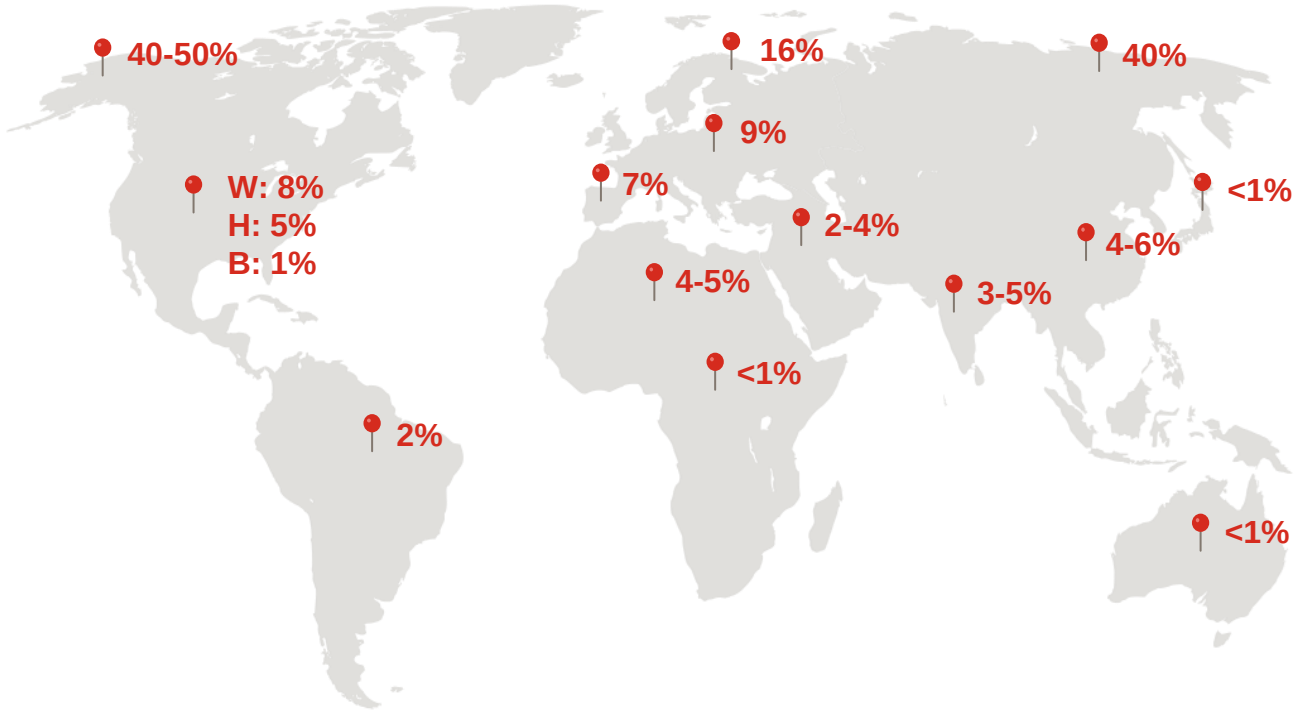
<10%

Prevalence of HLA-B27 in the general population[1-3]

70-90%

Prevalence of HLA-B27 in White patients with axSpA[1,3,4]

Frequency of HLA-B27 in General Worldwide Populations[5]



The absolute risk of axSpA in persons with HLA-B27 positivity, without a first-degree relative affected by the disease, is estimated to be **2-10%**.[4]

Note: The 40-50% frequency in Siberia and Alaska refer to the frequency in native Siberians and Alaskans, and not the White settlers. The <1% frequency in Australia refers to that in Australian Aborigines, and not in the White settlers. The <1% frequency in Japan, Africa, and the 2% frequency in Brazil refer to the general population frequencies of HLA-B27 in those regions.

axSpA=Axial Spondyloarthritis; B=Black; H=Hispanic; HLA-B27=Human Leukocyte Antigen B27; W=White.

1. Walsh JA, Magrey M. *J Clin Rheumatol.* 2021;27(8):e547-e560. 2. Reveille JD, et al. *Arthritis Rheumatol.* 2012;64(5):1407-1411. 3. Sieper J, et al. *Nat Rev Dis Primers.* 2015;1:15013.
4. Taurog JD, et al. *N Engl J Med.* 2016;374(26):2563-2574. 5. https://spondylitis.org/wp-content/uploads/2020/11/DiseaseSeverity_JohnReveille.pdf (Accessed May 2023).

AS/r-axSpA and nr-axSpA Prevalence

Estimated global prevalence rates:

0.3-1.4%[1]	0.1-1.4%[1]	0.35-0.5%[2,3]
axSpA	AS/r-axSpA	nr-axSpA

r-axSpA is more common in males, (male-to-female ratio=2:1), whereas **nr-axSpA has a more equal sex distribution.**[1,2]

Age of onset for majority of patients is within **the third decade of life** (<30 years).[1]

Rates of progression from nr-axSpA to AS/r-axSpA:

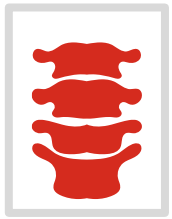
2-12%	26-28%
in 2 years[4,5]	after ≥10 years[6]

Note: Differences in study design can explain some variability in global prevalence; further, prevalence of the disease is highly affected by the background prevalence of the HLA- B27 gene.[1]
AS=Ankylosing Spondylitis; axSpA=Axial Spondyloarthritis; HLA-B27=Human Leukocyte Antigen-B27; nr-axSpA=Nonradiographic Axial Spondyloarthritis; r-axSpA=Radiographic Axial Spondyloarthritis.

1. Navarro-Compán V, et al. *Ann Rheum Dis.* 2021;80(12):1511-1521. 2. Magrey M, et al. *Medicine (Baltimore).* 2022;101(15):e29063. 3. Reveille JD, Weisman MH. *Am J Med Sci.* 2013;345(6):431-436. 4. Ruderman E, et al. *Arthritis Rheum.* 2013;65:S1052-1053. 5. Poddubnyy D, et al. *Ann Rheum Dis.* 2011;70(8):1369-1374. 6. Ghosh N, Ruderman EM. *Arthritis Res Ther.* 2017;19(1):286. 7. Wang R, et al. *Arthritis Rheumatol.* 2016;68(6):1415-1421.

Classification Criteria and Diagnosis

axSpA Terminology and Classification



1693

The first documented use of ankylosing spondylitis (AS) terminology by Bernard Connor.[2]

1966

New York Criteria for AS, include diagnosis and grading for definite and probable AS.[3]

1973

HLA-B27 discovered[4,5]

1984

Modified New York Criteria for diagnosis and classification of AS, includes clinical and radiologic criteria for definite AS.[6]

2005

SPARCC scoring system for sacroiliac joints[7]

2009

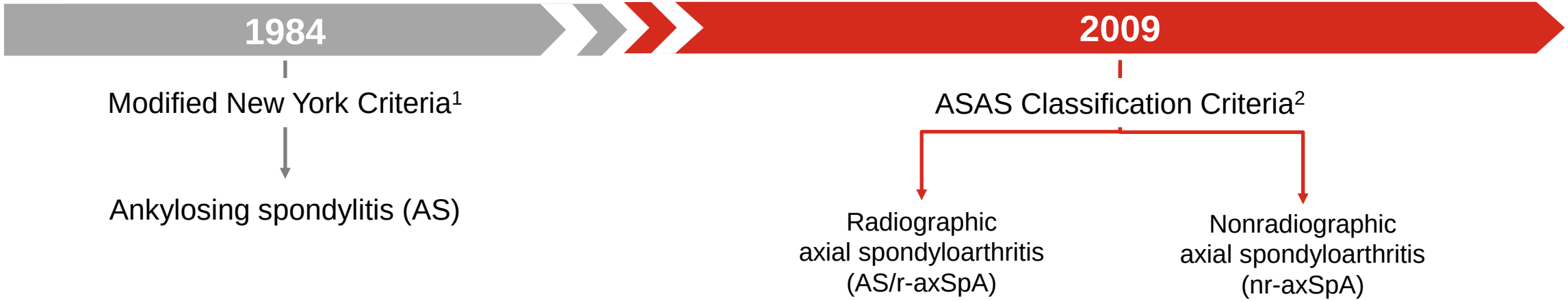
ASAS classification criteria identifies AS/r-axSpA and nr-axSpA.[8]

AS=Ankylosing Spondylitis; ASAS=Assessment of SpondyloArthritis International Society; HLA=Human Leukocyte Antigen; nr-axSpA=Nonradiographic Axial Spondyloarthritis; r-axSpA=Radiographic Axial Spondyloarthritis; SPARCC=Spondyloarthritis Research Consortium of Canada.

1. Saleem SN, et al. *Arthritis Rheumatol.* 2014;66(12):3311-3316. 2. Keitel W. *Z Rheumatol.* 2012;71(4):330-339. 3. Moll JM, Wright V. *Ann Rheum Dis.* 1973;32(4):354-363. 4. Reveille JD, Weisman MH. *Am J Med Sci.* 2013;345(6):431-436. 5. Schlosstein L, et al. *N Engl J Med.* 1973;288(14):704-706. 6. van der Linden S, et al. *Arthritis Rheum.* 1984;27(4):361-368. 7. Landewé RB, et al. *J Rheumatol.* 2005;32(10):2050-2055. 8. Rudwaleit M, et al. *Ann Rheum Dis.* 2009;68(6):777-783.

AS/r-axSpA and nr-axSpA Classification

- Diagnosis and classification of AS has been based on the modified New York (mNY) criteria, which require the presence of radiographic sacroiliitis.[1]
- The ASAS criteria allow for the classification of patients without radiographic changes as nr-axSpA.[2]
  - Positive MRI may be used to identify this subtype.
  - The criteria also contains a clinical arm, which enhances the capability to identify patients without MRI findings as it requires the presence of positive HLA-B27 and two SpA features.
- The imaging arm of the ASAS classification criteria includes sacroiliitis on X-rays (as per mNY criteria) as one of its criterion and therefore, identifies patients with AS/r-axSpA.[2]



AS=Ankylosing Spondylitis; ASAS=Assessment of SpondyloArthritis International Society; axSpA=Axial Spondyloarthritis; HLA=Human Leukocyte Antigen; mNY=modifed New York; MRI=Magnetic Resonance Imaging; nr-axSpA=Nonradiographic Axial Spondyloarthritis; r-axSpA=Radiographic Axial Spondyloarthritis; SpA=Spondyloarthritis.

1. van der Linden S, et al. *Arthritis Rheum*.1984;27(4):361-368. 2. Rudwaleit M, et al. *Ann Rheum Dis.* 2009;68(6):777-783.

Modified New York Criteria and ASAS Classification Criteria

Modified New York Criteria[1,2]

1. Clinical criteria:[1,2]

- **Low back pain** and **stiffness** for >3 months, which improves with exercise but is not relieved by rest
- **Limitation of motion** of the lumbar spine in both sagittal and frontal planes
- **Limitation of chest expansion** relative to normal values corrected for age and sex

2. Radiologic criterion:[1,2]

- **Sacroiliitis** grade ≥2 bilaterally or sacroiliitis grade 3-4 unilaterally[a]

Definite AS if the radiographic criterion is associated with ≥1 clinical criterion.[1,2]

ASAS Classification Criteria[1]

In patients with ≥3 months chronic back pain and age at onset <45 years:

IMAGING ARM		CLINICAL ARM
Sacroiliitis on imaging: Acute inflammation on MRI highly suggestive of sacroiliitis **OR** Definite sacroiliitis according to modified New York criteria[2]	**OR**	HLA-B27 positive

+ ≥1 SpA feature

+ ≥2 other SpA features

nr-axSpA classification is based on a positive MRI (imaging arm) OR on clinical arm.[1,2]

[a]Sacroiliitis grading can be achieved using plain radiographs.

AS=Ankylosing Spondylitis; ASAS=Assessment of Spondyloarthritis International Society; HLA-B27=Human Leukocyte Antigen B27; MRI=Magnetic Resonance Imaging; nr-axSpA=Nonradiographic Axial Spondyloarthritis; SpA=Spondyloarthritis.

1. Rudwaleit M, et al. *Ann Rheum Dis.* 2009;68:777-783. 2. van der Linden S, et al. *Arthritis Rheum.*1984;27:361-368.

ASAS Classification Criteria

SpA features:[1]

- Inflammatory back pain
- Arthritis
- Enthesitis (heel)
- Uveitis
- Dactylitis
- Psoriasis
- Ulcerative colitis/Crohn's disease
- Good response to NSAIDs
- Family history of SpA
- HLA-B27 positive
- Elevated CRP

ASAS Classification Criteria[1]

In patients with ≥3 months chronic back pain and age at onset <45 years:

IMAGING ARM		CLINICAL ARM
Sacroiliitis on imaging: Acute inflammation on MRI highly suggestive of sacroiliitis **OR** Definite sacroiliitis according to modified New York criteria[2]	**OR**	HLA-B27 positive
+ **≥1 SpA feature**		**+** **≥2 other SpA features**

nr-axSpA classification is based on a positive MRI (imaging arm) OR on clinical arm.[1,2]

ASAS=Assessment of Spondyloarthritis International Society; CRP=C-Reactive Protein; HLA-B27=Human Leukocyte Antigen B27; MRI=Magnetic Resonance Imaging; nr-axSpA=Nonradiographic Axial Spondyloarthritis; NSAID=Nonsteroidal Anti-Inflammatory Drug; SpA=Spondyloarthritis.

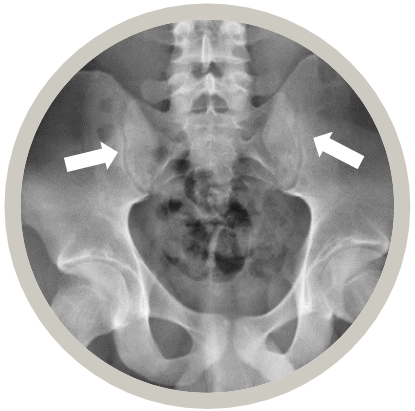
1. Rudwaleit M, et al. *Ann Rheum Dis.* 2009;68:777-783. 2. van der Linden S, et al. *Arthritis Rheum.*1984;27:361-368.

axSpA: One Disease, Two Subtypes

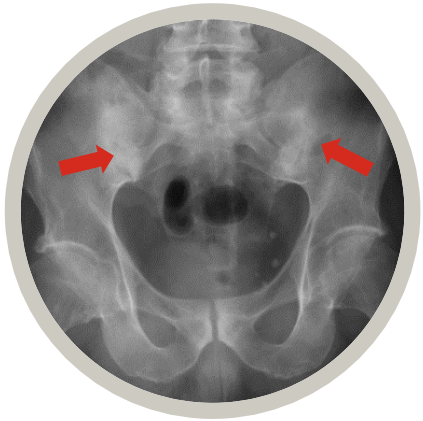
axSpA encompasses 2 subtypes of the same disease[1-3]

nr-axSpA[4]
No definite sacroiliitis according to mNY criteria

AS/r-axSpA[4]
Definite sacroiliitis according to mNY criteria



Grade 2 or less unilaterally
sacroiliitis according to mNY criteria[4]



Definite
radiographic sacroiliitis[4]

AS=Ankylosing Spondylitis; axSpA=Axial Spondyloarthritis; mNY=Modified New York; nr-axSpA=Nonradiographic Axial Spondyloarthritis; r-axSpA=Radiographic Axial Spondyloarthritis.

1. Ward MM, et al. *Arthritis Rheumtol*. 2016;68(2):282-298. 2. Taurog JD, et al. *N Engl J Med*. 2016;374(26):2563-2574. 3. van der Linden S, et al. *Arthritis Rheum*.1984;27(4):361-368. 4. Sieper J, et al. *Ann Rheum Dis*. 2009;68(Suppl 2):ii1-44.

Defining AS/r-axSpA and nr-axSpA in Clinical Trials and Clinical Practice

Clinical Practice

Diagnosis

- AS is diagnosed based on history, physical examination, imaging findings and careful diagnostic considerations.[1,2]
  - Classification criteria should not be used to diagnose patients.[3]

Imaging

- Most HCPs rely on imaging interpretations by radiologists and/or their own interpretation.[1]

Clinical Trials

Classification

- Patients are required to have a diagnosis and fulfill classification criteria such as the mNY and/or the ASAS criteria.[2]

Imaging

- Sometimes, an expert interpretation system is used to decrease intra- and inter-reader variability and assure a more accurate diagnosis, including defined criteria to identify sacroiliitis.[1,3]

AS=Ankylosing Spondylitis; ASAS=Assessment of SpondyloArthritis International System; axSpA=Axial Spondyloarthritis; HCP=Health Care Practitioner; mNY=Modified New York Ciriteria; nr-axSpA=Nonradiographic Axial Spondyloarthritis; r-axSpA=Radiographic Axial Spondyloarthritis.

1. Walsh JA, Magrey M. *J Clin Rheumatol.* 2021;27(8):e547-e560. 2. Taurog JD, et al. *N Engl J Med.* 2016;374:2563-2574. 3. Danve A, et al. *Clin Rheumatol.* 2019;38:625-634.

Defining AS/r-axSpA and nr-axSpA in Clinical Trials and Clinical Practice

Clinical Practice	Clinical Trials
Diagnosis	Classification
• Most HCPs rely on imaging interpretations by radiologists and/or their own interpretation.[1]	variability and assure a more accurate diagnosis, including defined criteria to identify sacroiliitis.[1,3]

axSpA **lacks validated diagnostic criteria.**[3]

Classification criteria **should not be used to make a diagnosis of axSpA** due to the potential for misclassification.[3]

AS=Ankylosing Spondylitis; ASAS=Assessment of SpondyloArthritis International System; axSpA=Axial Spondyloarthritis; HCP=Health Care Practitioner; mNY=Modified New York Ciriteria; nr-axSpA=Nonradiographic Axial Spondyloarthritis; r-axSpA=Radiographic Axial Spondyloarthritis.

1. Walsh JA, Magrey M. *J Clin Rheumatol.* 2021;27(8):e547-e560. 2. Taurog JD, et al. *N Engl J Med.* 2016;374:2563-2574. 3. Danve A, et al. *Clin Rheumatol.* 2019;38:625-634.

Diagnosis of axSpA in Clinical Practice

In clinical practice, diagnosis can be based on a range of different assessments and information:

- Personal and family history, and physical examination.
- Symptoms, such as chronic inflammatory back pain, fatigue, stiffness.
- Evaluation of other causes of back pain, and differentiation between inflammatory and mechanical back pain.
- Imaging including radiograph of the sacroiliac joint, in some cases also of the spine, and possibly MRIs.
- Laboratory tests (e.g., HLA-B27, CRP).

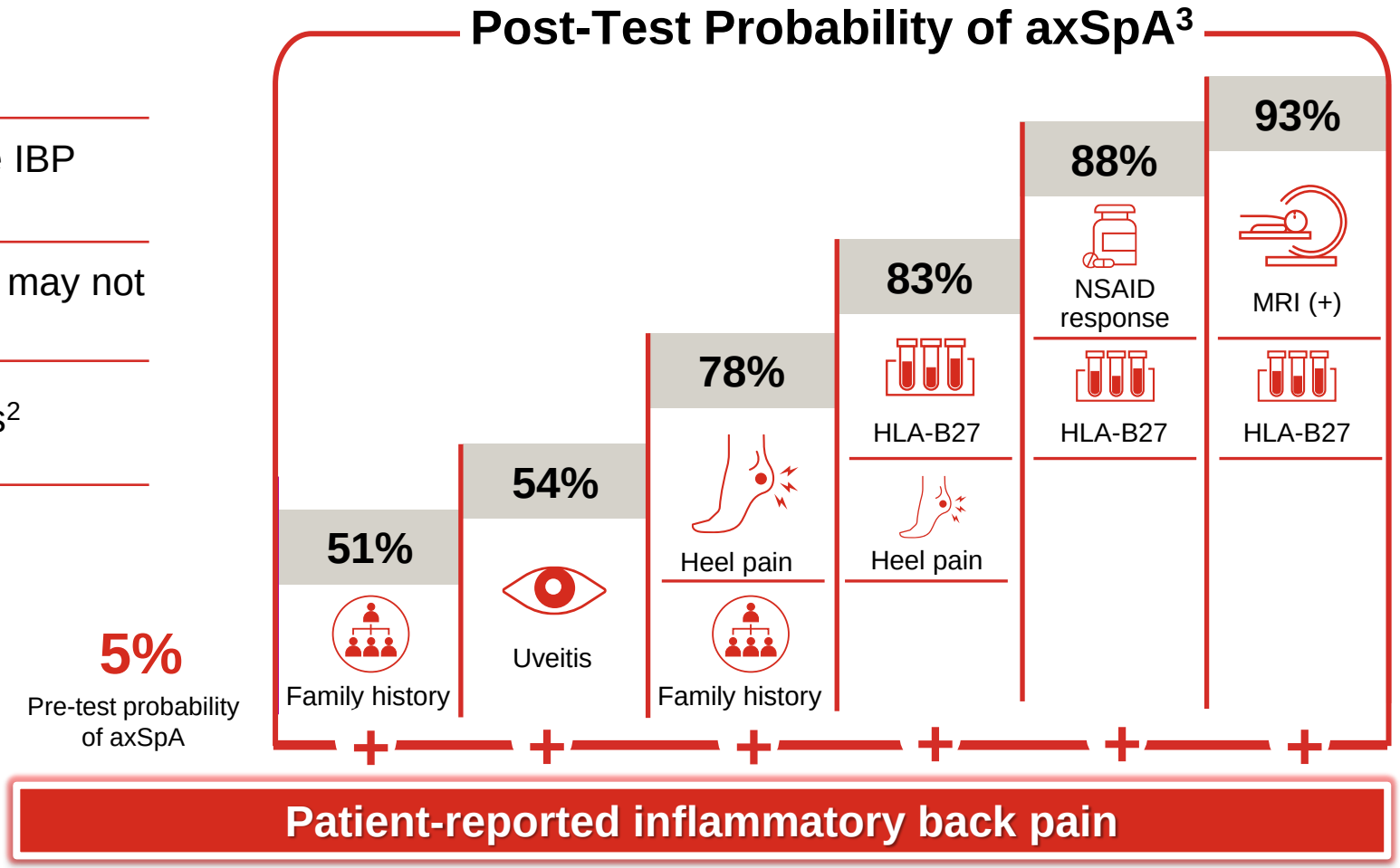
Other causes of back pain confound diagnosis.

axSpA=Axial Spondyloarthritis; CRP=C-Reactive Protein; HLA=Human Leukocyte Antigen; MRI=Magnetic Resonance Imaging.

Walsh JA, Magrey M. *J Clin Rheumatol.* 2021;27(8):e547-e560.

Diagnosing axSpA – Recognizing the Compelling Clinical Picture

- Ask questions to help differentiate IBP from mechanical back pain[1]
- Recognize that features of axSpA may not be objective[2]
- Use SpA features as clinical clues[2]

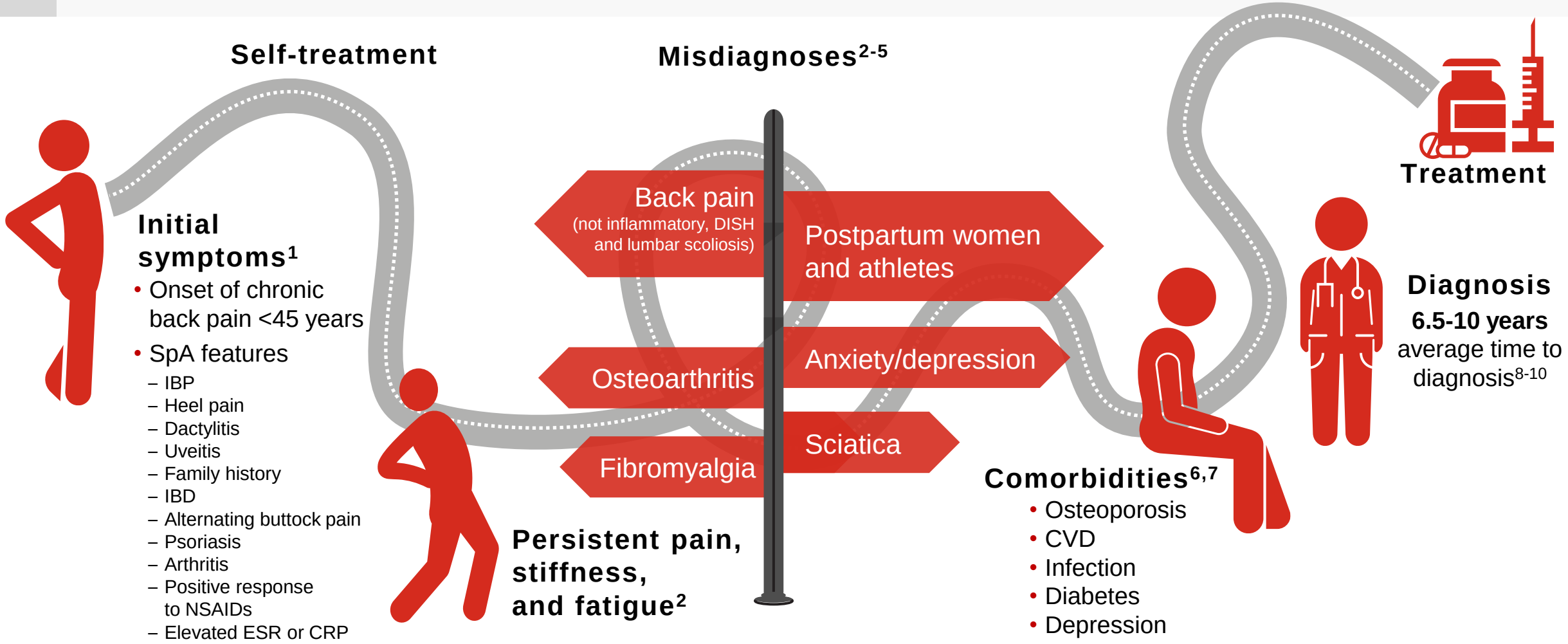


axSpA=Axial Spondyloarthritis; HLA-B27=Human Leukocyte Antigen B27; IBP=Inflammatory Back Pain; MRI=Magnetic Resonance Imaging; NSAID=Nonsteroidal Anti-Inflammatory Drug.

1. NASS. Differentiating Inflammatory and Mechanical Back Pain. April 2018. Available from: https://nass.co.uk/wp-content/uploads/2020/03/Physiotherapy-modules-1.pdf. (Accessed March 2023).
2. Deodhar AA. *Am J Managed Care*. 2019;25 (17, suppl):S319-S330. 3. Rudwaleit M, et al. *Ann Rheum Dis*. 2004;63(5):535-543.

The Journey of axSpA

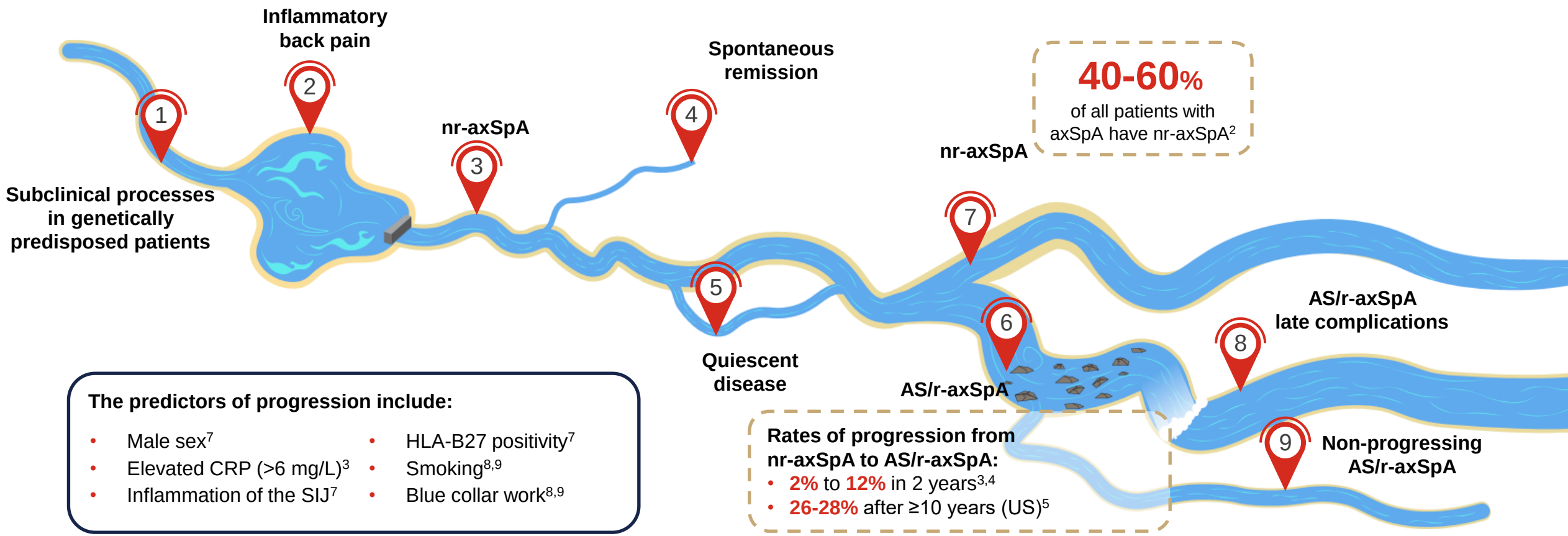
The Journey to an axSpA Diagnosis



axSpA=Axial Spondyloarthritis; CRP=C-Reactive Protein; CVD=Cardiovascular Disease; DISH=Diffuse Idiopathic Skeletal Hyperostosis; ESR=Erythrocyte Sedimentation Rate; IBD=Inflammatory Bowel Disease; IBP=Inflammatory Back Pain; NSAID=Nonsteroidal Anti-inflammatory Drug; SpA=Spondyloarthritis.

1. Rudwaleit M, et al. *Ann Rheum Dis.* 2009;68:777-783. 2. Ogdie A, et al. *Rheumatol Ther.* 2019;6:255-267. 3. Danve A, et al. *Clin Rheumatol.* 2019;38:625-634. 4. Walsh JA, Magrey M. *J Clin Rheumatol.* 2021;27(8):e547-e560.
5. Voirin-Hertz M, et al. *Semin Arthritis Rheum.* 2020;50(1):48-53. 6. Moltó A, et al. *Best Pract Res Clin Rheumatol.* 2018;32(3):390-400. 7. Strand VC, et al. *J Clin Rheumatol.* 2017;23(7):383-391.
8. Lapane KL, et al. *BMC Fam Pract.* 2021;22(1):251. 9. Zhao SS, et al. *Rheumatology (Oxford).* 2021;60(4):1620-1628. 10. Carvalho PD and Machado PM. *Best Pract Res Clin Rheumatol.* 2019;33(4):101427.

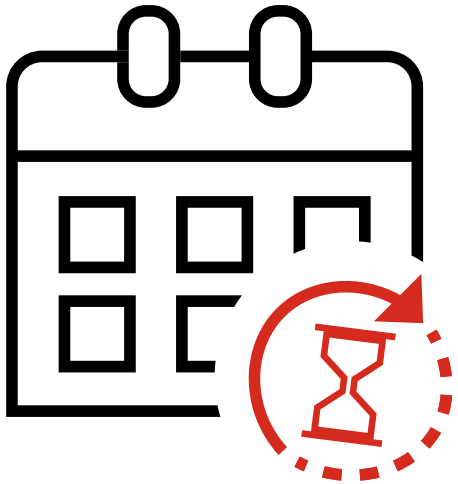
Natural History of axSpA[1]



AS=Ankylosing Spondylitis; axSpA=Axial Spondyloarthritis; CRP=C-Reactive Protein; HLA-B27=Human Leukocyte Antigen B27; nr-axSpA=Nonradiographic Axial Spondyloarthritis; r-axSpA=Radiographic Axial Spondyloarthritis; SIJ=Sacroiliac Joint; US=United States.

1. Garg N, et al. *Best Pract Res Clin Rheumatol*. 2014;28:663-672. 2. Deodhar A, et al. *Lancet*. 2020;395:53-64. 3. Ruderman E, et al. *Arthritis Rheum*. 2013;65:S1052-1053. 4. Poddubnyy D, et al. *Ann Rheum Dis*. 2011;70(8):1369-1374. 5. Ghosh N, Ruderman EM. *Arthritis Res Ther*. 2017;19(1):286. 6. Wang R, et al. *Arthritis Rheumatol*. 2016;68(6):1415-1421. 7. Poddubnyy D, et al. *Ann Rheum Dis*. 2022;81:96-97. Abstract OP0149. 8. Nikiphorou E, et al. *Curr Rheumatol Rep*. 2020;22(9):55. 9. Nikiphorou E, et al. *Arthritis Rheumatol*. 2020;72(11):1855-1862.

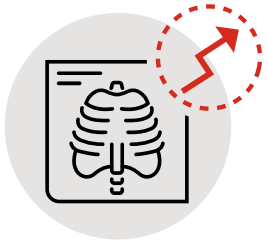
Delays in Diagnosis Add to the High Disease Burden



Average time from onset of symptoms to a diagnosis of axSpA

6.5-10 years[1-3]

A delayed diagnosis of axSpA is associated with:[1,2,4]



Greater radiographic progression

Reduced response to treatment

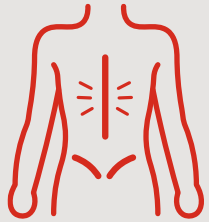
Worse physical function

Poorer quality of life

axSpA=Axial Spondyloarthritis.

1. Lapane KL, et al. *BMC Fam Pract.* 2021;22(1):251. 2. Zhao SS, et al. *Rheumatology (Oxford).* 2021;60(4):1620-1628. 3. Carvalho PD and Machado PM. *Best Pract Res Clin Rheumatol.* 2019;33(4):101427.
4. Yi E, et al. *Rheumatol Ther.* 2020;7(1):65-87.

Challenges in Diagnosing axSpA



Differentiating IBP from mechanical back pain[1]

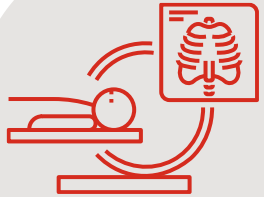
5% of patients with chronic **lower back pain** are estimated to have **axSpA.**[1,2]

Lack of reliable biomarkers[3-5]

HLA-B27 (varies by ethnicity and sex), **CRP** and **ESR** (low sensitivity and specificity).[3-5]

Lack of awareness of axSpA among HCPs[6,7]

Brief duration of clinical visits and **limited referral** to rheumatologists.[6]



Need for accurate interpretation of MRIs[8]

The need to **standardize** the use of MRI and the **interpretation** of lesions in relation to axSpA.[8]

Absence of diagnostic crtieria[1]

Classification criteria developed for **clinical research** purposes.[9]

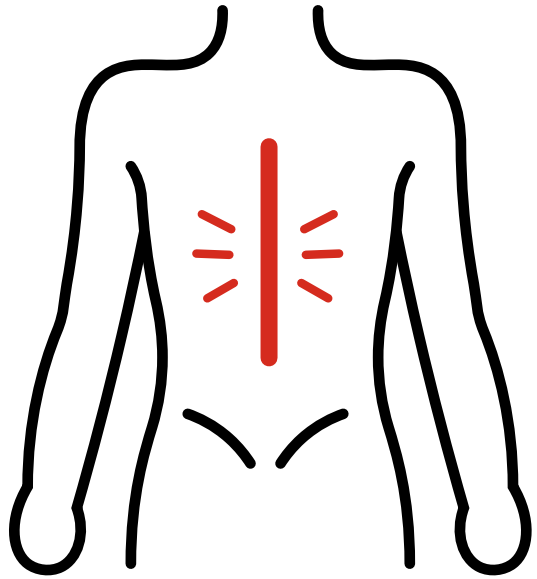
axSpA=Axial Spondyloarthritis; CRP=C-reactive Protein; ESR=Erythrocyte Sedimentation Rate; HCP=Healthcare Professional; HLA-B27=Human Leukocyte Antigen B27; IBP=Inflammatory Back Pain; MRI=Magnetic Resonance Imaging; nr-axSpA=Nonradiographic Axial Spondyloarthritis; r-axSpA=Radiographic Axial Spondyloarthritis.

1. Danve A, Deodhar A. *Clin Rheumatol.* 2019;38:625-634. 2. Poddubnyy D, et al. *RMD Open.* 2018;4:e000825. 3. Reveille JD. *Clin Rheumatol.* 2015;34(6):1009-1018. 4. Danve A, O'Dell J. *Int J Rheum Dis.* 2015;18(8):826-834.
5. Rusman T, et al. *Rheumatology (Oxford).* 2020;59(Suppl. 4):iv38-iv46. 6. Lapane KL, et al. *BMC Fam Pract.* 2021;22(1):251. 7. Sieper J, et al. *Ann Rheum Dis.* 2002;61 Suppl 3(Suppl 3):iii8-iii18.
8. Deodhar A, et al. *Arthritis Rheumatol.* 2016;68(7):1699-1676. 9. Aggarwal R, et al. *Arthritis Care Res (Hoboken).* 2015;67(7):891-897.

Differentiating IBP from Mechanical Back Pain

13%
of adults in the US have chronic back pain.[1]

5%
of patients with chronic back pain are estimated to have axSpA.[2]



5%-15% and **28%-35%**
of patients with acute and chronic back pain, respectively, are reported to have IBP.[2]

14%-16% of patients with IBP are estimated to have axSpA.[2]

IBP Symptoms[2]

- Insidious onset of back pain.
- Morning stiffness in the lower back.
- Improvement of back pain with exercise but not with rest.
- Awakening at night or early morning because of back pain.
- Alternating buttock pain.

axSpA=Axial Spondyloarthritis; IBP=Inflammatory Back Pain; US=United States.

1. Danve A, Deodhar A. *Clin Rheumatol*. 2019;38:625-634. 2. Poddubnyy D, et al. *RMD Open*. 2018;4:e000825.

Common Mimickers of axSpA

Fibromyalgia

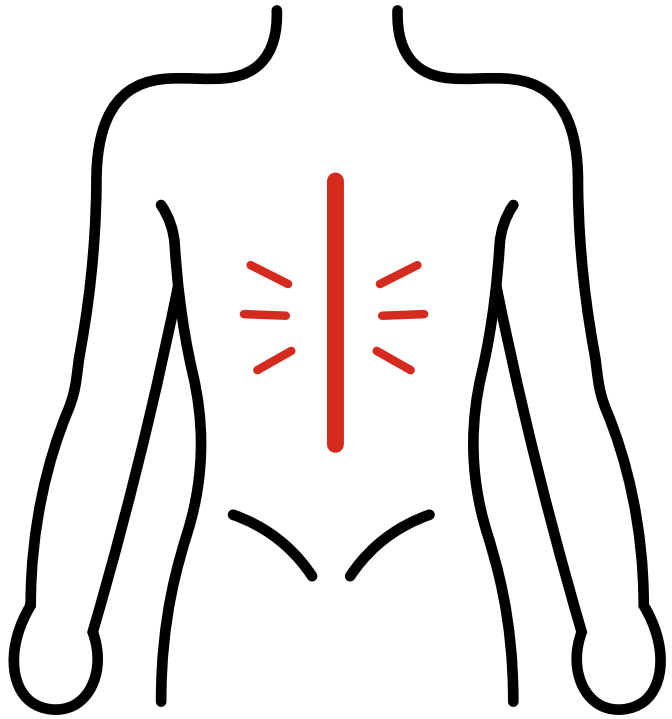
Pooled prevalence is 16% in patients with axSpA.[1]

Clinical overlap exists with chronic nocturnal back pain, morning stiffness, disturbed sleep, and fatigue.[2]

Increased clinical vigilance is needed for underlying axSpA in patients treated for fibromyalgia.[2]

Mechanical back pain

Clinicians may be unfamiliar with symptoms of back pain specific to axSpA (age of onset, extra-articular manifestations).[3]



Other

Lumbar scoliosis[4]

Diffuse idiopathic skeletal hyperostosis (DISH)[5]

Misread MRI (pregnancy/postpartum,[6] athletes[6])

Osteoarthritis[7]

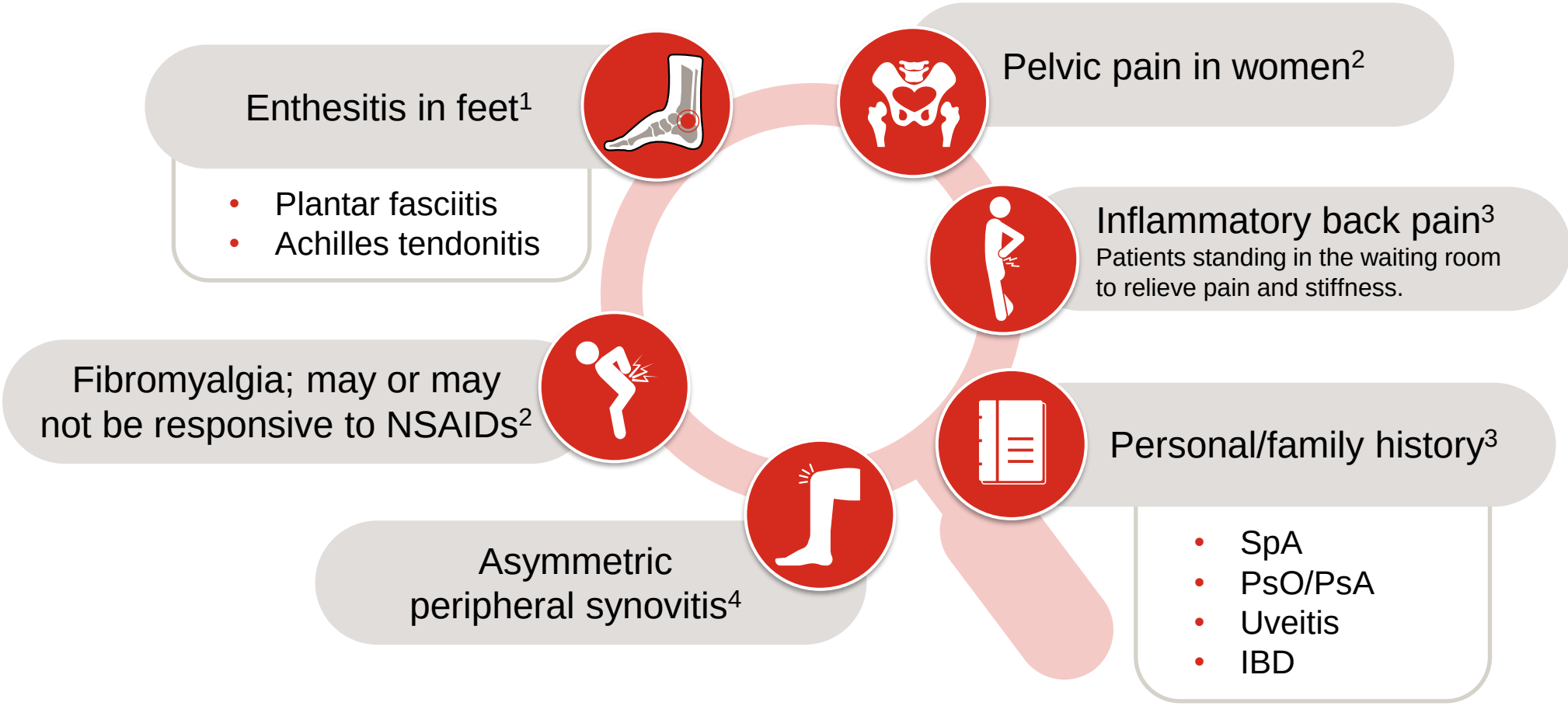
Anxiety/depression-related back pain[7]

Sciatica[7]

axSpA=Axial Spondyloarthritis; MRI=Magnetic Resonance Imaging.

1. Zhao SS, et al. *Best Pract Res Clin Rheumatol.* 2019;33(3):101423. 2. Ablin JN, et al. *Arthritis Care Res (Hoboken).* 2017;69(5):724-729. 3. Danve A, et al. *Clin Rheumatol.* 2019;38:625-634.
4. Voirin-Hertz M, et al. *Semin Arthritis Rheum.* 2020;50(1):48-53. 5. Vaishya R, et al. *J Clin Orthop Trauma.* 2017;8(2):191-196. 6. de Winter J, et al. *Arthritis Rheumatol.* 2018;70(7):1042-1048.
7. Ogdie A, et al. *Rheumatol Ther.* 2019;6:255-267.

Common Clues in axSpA Diagnosis – What to Look for?



axSpA=Axial Spondyloarthritis; IBD=Inflammatory Bowel Disease; NSAID=Non-steroidal Anti-inflammatory Drug; PsA=Psoriatic Arthritis; PsO=Psoriasis; SpA=Spondyloarthritis.

1. McGonagle D, et al. *Semin Arthritis Rheum.* 2021;51(6):1147-1161. 2. Walsh JA, Magrey M. *J Clin Rheumatol.* 2021;27(8):e547-e560. 3. Rudwaleit M, et al. *Ann Rheum Dis.* 2009;68(6):777-783.
4. Winkler AE, Miller M. *Mo Med.* 2022;119(1):79-83.

Summary

- axSpA refers to the **inflammation of the axial skeleton** and encompasses **two subtypes**: AS/r-axSpA and nr-axSpA.[1-4]
  - nr-axSpA is defined as patients without changes consistent with sacroiliitis that meets mNY criteria.[4]
  - r-axSpA is defined as definite sacroiliitis according to mNY criteria, plus at least one SpA feature if we are going to use ASAS criteria.[4]
- **Diagnosis can be challenging** with multiple factors contributing to delays, particularly in patients presenting with less definitive clinical features.[5-13]
- **Classification criteria** are used to identify eligible patients for clinical trial enrollment and are **not intended to be used to diagnose patients.**[5,13]

AS=Ankylosing Spondylitis; axSpA=Axial Spondyloarthritis; mNY=modified New York; nr-axSpA=Nonradiographic Axial Spondyloarthritis; r-axSpA=Radiographic Axial Spondyloarthritis.

1. Ward MM, et al. *Arthritis Rheumtol*. 2016;68(2):282-298. 2. Taurog JD, et al. *N Engl J Med*. 2016;374(26):2563-2574. 3. van der Linden S, et al. *Arthritis Rheum*.1984;27(4):361-368. 4. Sieper J, et al. *Ann Rheum Dis*. 2009;68(Suppl 2):ii1-44. 5. Danve A, Deodhar A. *Clin Rheumatol.* 2019;38:625-634. 6. Poddubnyy D, et al. *RMD Open.* 2018;4:e000825. 7. Reveille JD. *Clin Rheumatol.* 2015;34(6):1009-1018. 8. Danve A, O'Dell J. *Int J Rheum Dis.* 2015;18(8):826-834. 9. Rusman T, et al. *Rheumatology (Oxford).* 2020;59(Suppl. 4):iv38-iv46. 10. Lapane KL, et al. *BMC Fam Pract.* 2021;22(1):251. 11. Sieper J, et al. *Ann Rheum Dis.* 2002;61 Suppl 3(Suppl 3):iii8-iii18. 12. Deodhar A, et al. *Arthritis Rheumatol.* 2016;68(7):1699-1676. 13. Aggarwal R, et al. *Arthritis Care Res (Hoboken).* 2015;67(7):891-897.

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For additional resources on axSpA, scan the code

SCAN HERE