

Psoriatic Arthritis: Disease State



Module 5:

Burden of Disease, Treatment Goals, and Guideline Overview

Objectives



- To understand the total burden of disease of PsA, comorbidities associated with PsA, and risk of cardiovascular events
- To understand the functional, emotional, social, and economic impact of PsA
- To understand the QoL in patients with PsA
- To understand the treatment goals

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PsA

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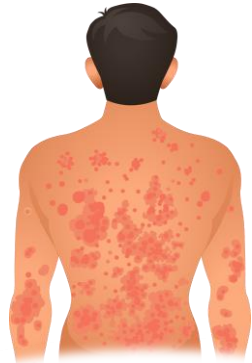
Unmet Treatment Needs

Conclusion

PsA=Psoriatic Arthritis; QoL=Quality of Life.

Burden of Disease of PsA

- The burden of PsA can negatively impact patients' wellbeing across all disease domains¹



Psoriasis

Negatively impact the patients' QoL and has been associated with mental illness, metabolic syndrome, and a variety of skin cancers²



Enthesitis

Associated with greater disease activity, poor functional status, more pain and fatigue, and greater disability³



Dactylitis



Nail changes

Associated with psychological distress, functional disability, and infections⁴



Arthritis (peripheral and/or axial)

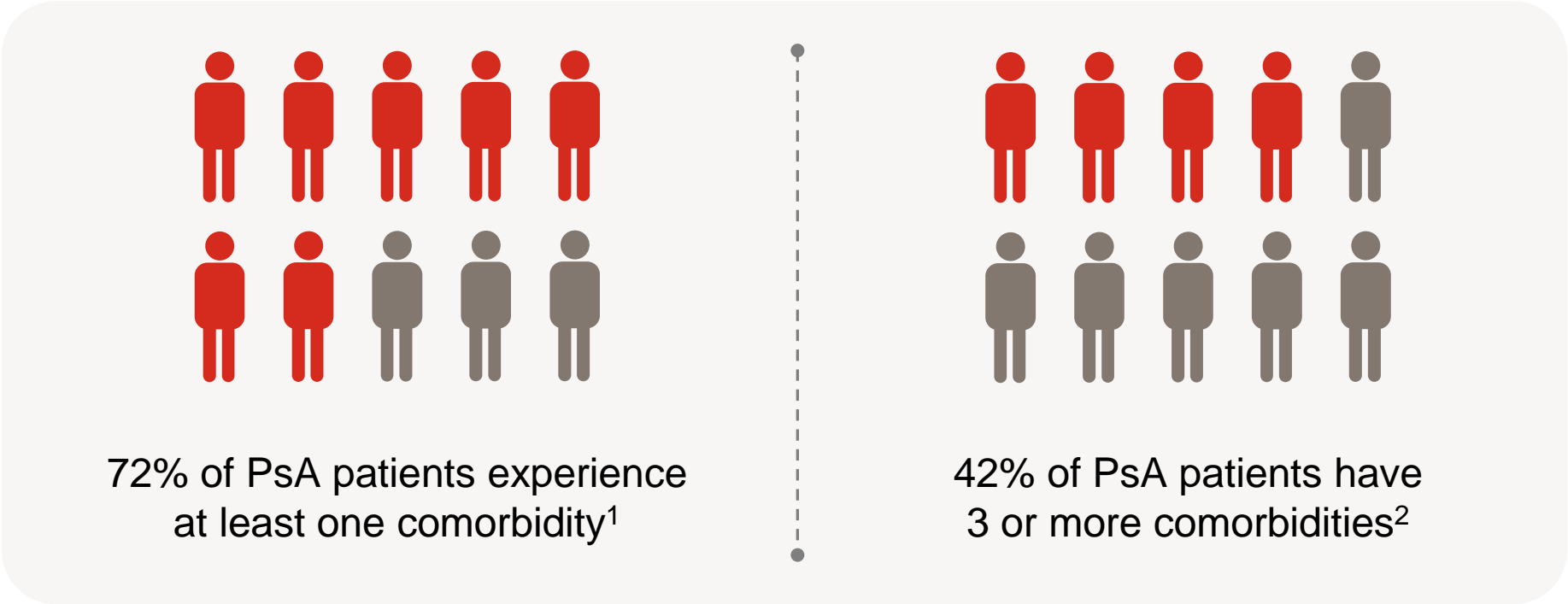
Patients can suffer from significant irreversible joint damage, subsequent disability, and limitation of physical function over time⁵

PsA=Psoriatic Arthritis.

1. Coates LC, et al. *Health Qual Life Outcomes*. 2020;18(1):173. 2. Nair PA, Badri T. In: StatPearls [Internet]. Treasure Island, FL: StatPearls Publishing; 2022. <https://www.ncbi.nlm.nih.gov/books/NBK448194/> (Accessed July 11, 2022). 3. Bagel J, Schwartzman S. *Am J Clin Dermatol*. 2018;19(6):839-852. 4. Muneer H, Masood S. Psoriasis of the Nails. In: StatPearls [Internet]. Treasure Island, FL: StatPearls Publishing; 2023. <https://www.ncbi.nlm.nih.gov/books/NBK559260/> (Accessed September 05, 2023). 5. van der Heijde D, et al. *Arthritis Res Ther*. 2020;22(1):18.

Prevalence of Comorbidities in Patients With PsA

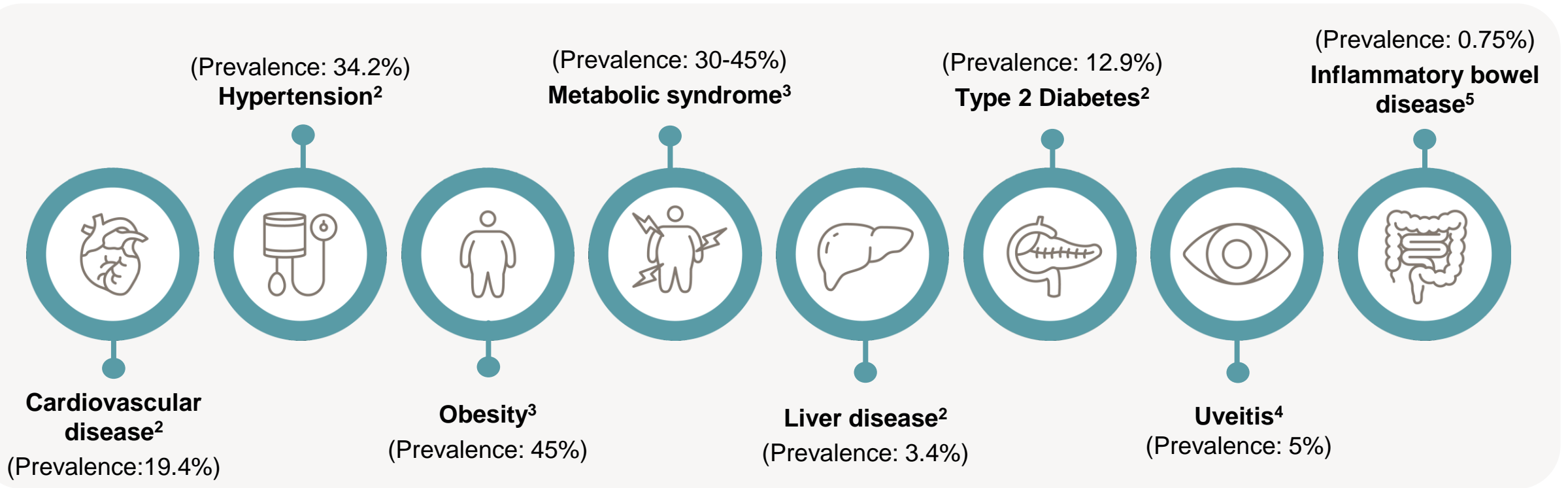
- In patients with PsA, the prevalence and impact of medical comorbidities were very high^{1,2}



PsA=Psoriatic Arthritis.
1. Lubrano E, et al. *Rheumatol Ther.* 2020;7(4):825-836. 2. Husted JA, et al. *J Rheumatol.* 2013;40(8):1349-1356.

Comorbidities Associated With PsA

- In the pre-pandemic period, standard mortality ratio for PsA versus general population was 0.95 (0.61-1.49)^{1a}
- The crude mortality rate in PsA increased twofold during the pandemic (pre-pandemic crude mortality rate: 5.07 vs. 10.76 during the pandemic)^{1a}



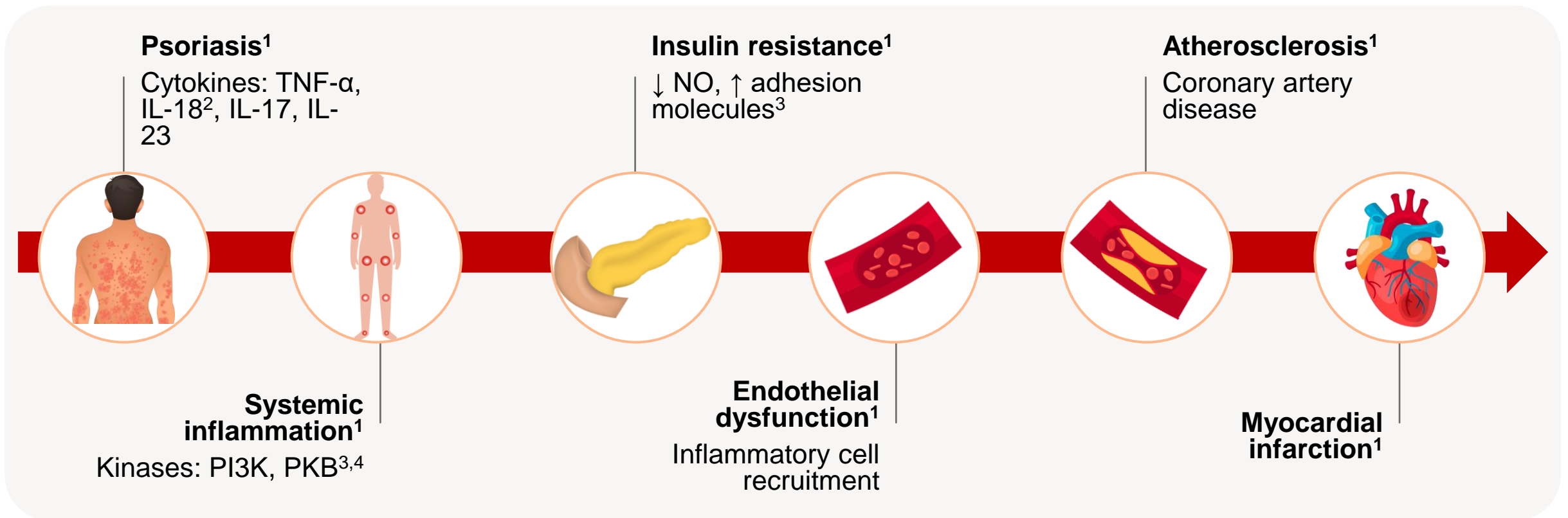
^aBased on a prospective, multicenter PsART-ID (Psoriatic Arthritis Registry-International Database), 1216 PsA patients from Turkey with a follow up of 7500 patient years (2577 patients-year for males, and 4923 patients-year for females). PsA=Psoriatic Arthritis.

1. Erden A, et al. *Clin Rheumatol*. 2023;42(2):385-390. 2. Gupta S, et al. *Rheumatol Int*. 2021;41(2):275-284. 3. Klingberg E, et al. *Arthritis Res Ther*. 2019;21(1):17. 4. De Vicente Delmás A, et al. *RMD Open*. 2023;9(1):e002781.

5. Charlton R, et al. *Ann Rheum Dis*. 2018;77:277-280.

Risk of Cardiovascular Events

- The “psoriatic march” describes the association from psoriasis to cardiovascular disease¹



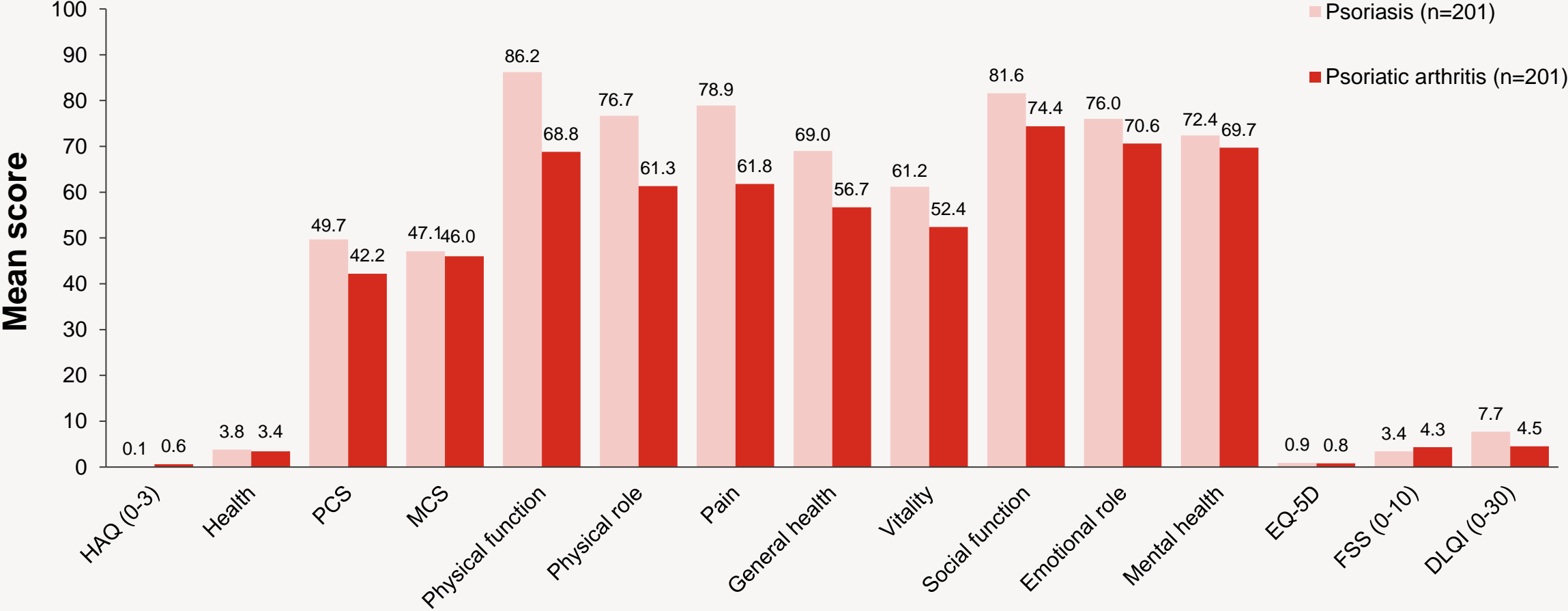
IL=Interleukin; NO=Nitric Oxide; PI3K=Phosphoinositol-3-Kinase; PKB=Protein Kinase B; TNF=Tumor Necrosis Factor.

1. Orlando G, et al. *Front Immunol.* 2022;13:868277. 2. Arican O, et al. *Mediators Inflamm.* 2005. 2005(5):273-9. 3. Boehncke WH, et al. *Exp Dermatol.* 2011;20(4):303-307. 4. Mercurio L, et al. *Front Med (Lausanne).* 2021;8:665647.

Patients With PsA Report Lower QoL Than Patients With Psoriasis

Longitudinal Observational Cohort Study (Results from HAQ, SF-36, EQ-5D, FSS, and DLQI assessments)

Quality of Life Assessment Scores



DLQI=The Dermatology Life Quality Index; EQ-5D=The EuroQoL 5 Domains; FSS=Fatigue Severity Scale; MCS=Mental Component Score; PCS=Physical Component Score; PsA=Psoriatic Arthritis; QoL=Quality of Life; SF-36=Medical Outcome Study 36-item Short Form Health Survey. Rosen CF, et al. *Rheumatology (Oxford)*. 2012;51(3):571-576.

Physical, Psychological, and Social Impact of PsA

Percentage of patients reporting common, moderate/major impacts of PsA^a

Physical impact of PsA



- Physical activity (78%)
- Ability to perform certain activities (76%)
- Work productivity (62%)
- Stopping from certain sports/recreational activities (56%)
- Permanent disability (12%)

Impact of PsA on work



- Career path (57%)
- Having to take a sick day (49%)
- Decreased productivity (42%)
- Having to take medical leave (34%)
- Quitting or being let go from a job (13%)
- Switching jobs (12%)

Psychological impact of PsA



- Emotional/mental wellbeing (69%)
- Romantic relationships/intimacy (56%)
- Relationships with family and friends (44%)

Social impact of PsA



- Emotional distress (58%)
- Ceased participation in social activities (45%)
- Social shame or disapproval (32%)

^aBased on an online patient-based global survey of 1286 PsA patients from 8 countries (Australia, Brazil, Canada, France, Spain, Taiwan, the UK, and the US).

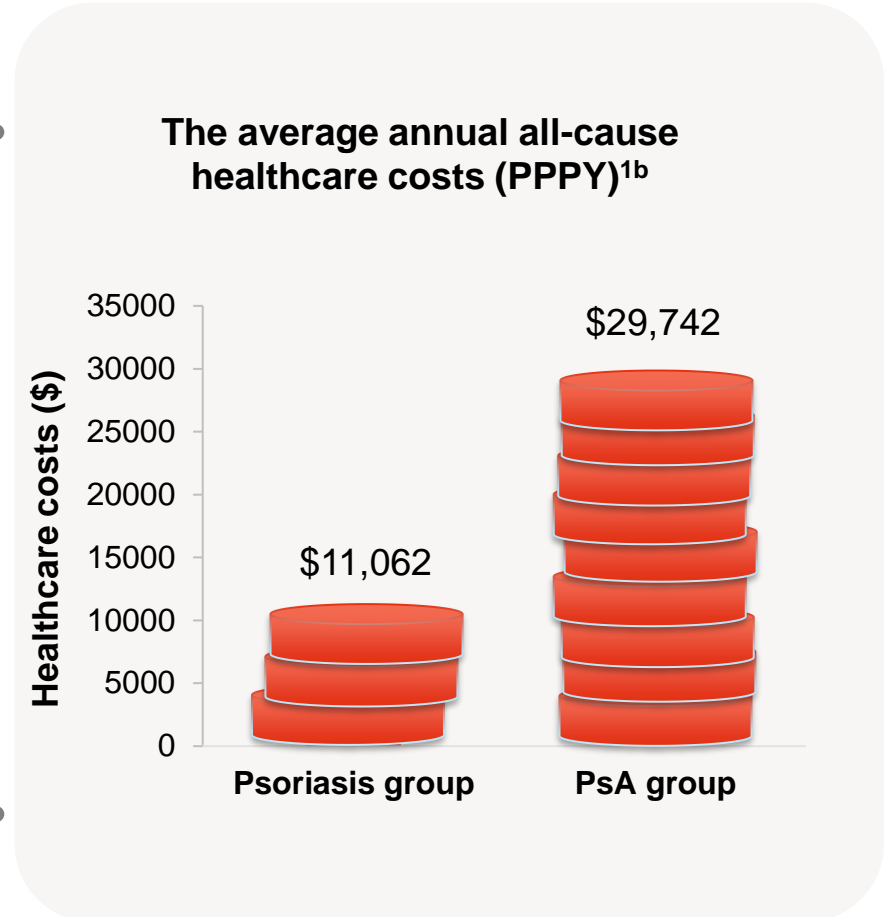
PsA=Psoriatic Arthritis.

Coates LC, et al. *Health Qual Life Outcomes*. 2020;18(1):173.

Economic Impacts of PsA

Direct and Indirect Costs (A Retrospective Study of Claims Data from 2009 to 2020)

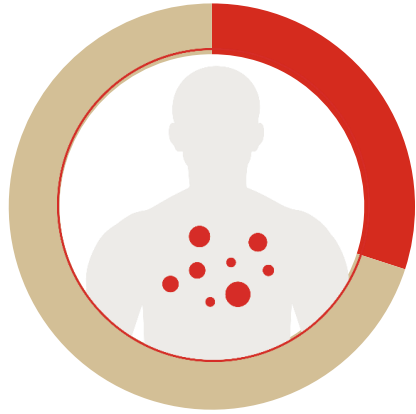
- In the USA, annual estimated total cost (direct and indirect) of psoriasis is \$11.25 billion and ~60% of it is attributed to direct costs¹
- The average annual drug costs for the psoriasis and PsA groups were \$11,814 and \$49,211 per patient, respectively¹
- Generally, about half (54-63%) of PsA patients are employed²
- Almost one-third claim some form of disability²
- Indirect costs (disability and loss of productivity^a) account for 52-72% of total costs associated with PsA²



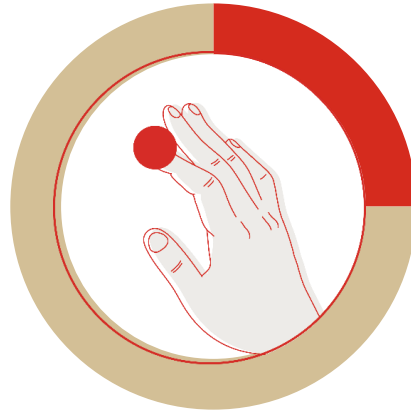
^aLoss of productivity due to disease when present at work. ^bBased on a retrospective study of claims data (USA) from 2009 to 2020. PsA=Psoriatic Arthritis; PPPY=Per Patient Per Follow-up Year.

1. Merola JF, et al. *Clin Rheumatol*. 2021;40(10):4061-4070. 2. Lee S, et al. *P T*. 2010;35:680-689.

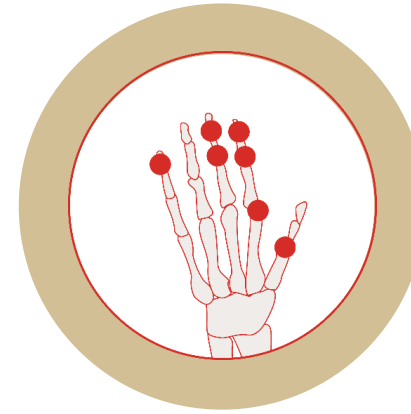
Delayed Diagnosis of Psoriatic Arthritis Can Worsen Outcomes



30% of patients with PsO will develop PsA¹



~50% of patients with PsO will have nail involvement²



A delay in diagnosis of PsA >6 months can lead to worse long-term function, irreversible joint damage and lower treatment response^{3,4}

HCPs in a dermatology clinic are in a unique position to recognize those at risk of PsA transition and act with early intervention that may attenuate or potentially prevent the development of joint damage⁵

HCP=Healthcare Professional; PsA=Psoriatic Arthritis; PsO=Psoriasis.

1. Ritchlin CT, et al. *N Engl J Med.* 2017;376(10):957-970. Erratum in: *N Engl J Med.* 2017;376(21):2097. 2. Egeberg A, et al. *BMC Dermatol.* 2020;20(1):3. 3. Scher JU, et al. *Nat Rev Rheumatol.* 2019;15(3):153-166.

4. van der Heijde D, et al. *Arthritis Res Ther.* 2020;22(1):18. 5. McHugh NJ. *J Rheumatol Suppl.* 2015;93:10-13.

What Are the Treatment Goals for PsA?

PsA=Psoriatic Arthritis.

Patients With Psoriasis or Psoriatic Arthritis Want Reduced Symptoms and a Better Quality of Life



Psoriasis	Psoriatic Arthritis
Achieving and maintaining clear skin ¹	Reduced joint pain ²
Reduced itch ¹	Reduced stiffness ²
Reduced skin flaking ¹	Better function ²
Reduced flares/episodes ¹	Reduced fatigue ²
	Prevent further joint damage ²
(a) Improved quality of life² (b) Reduced pain² (c) Minimum use of medications²	

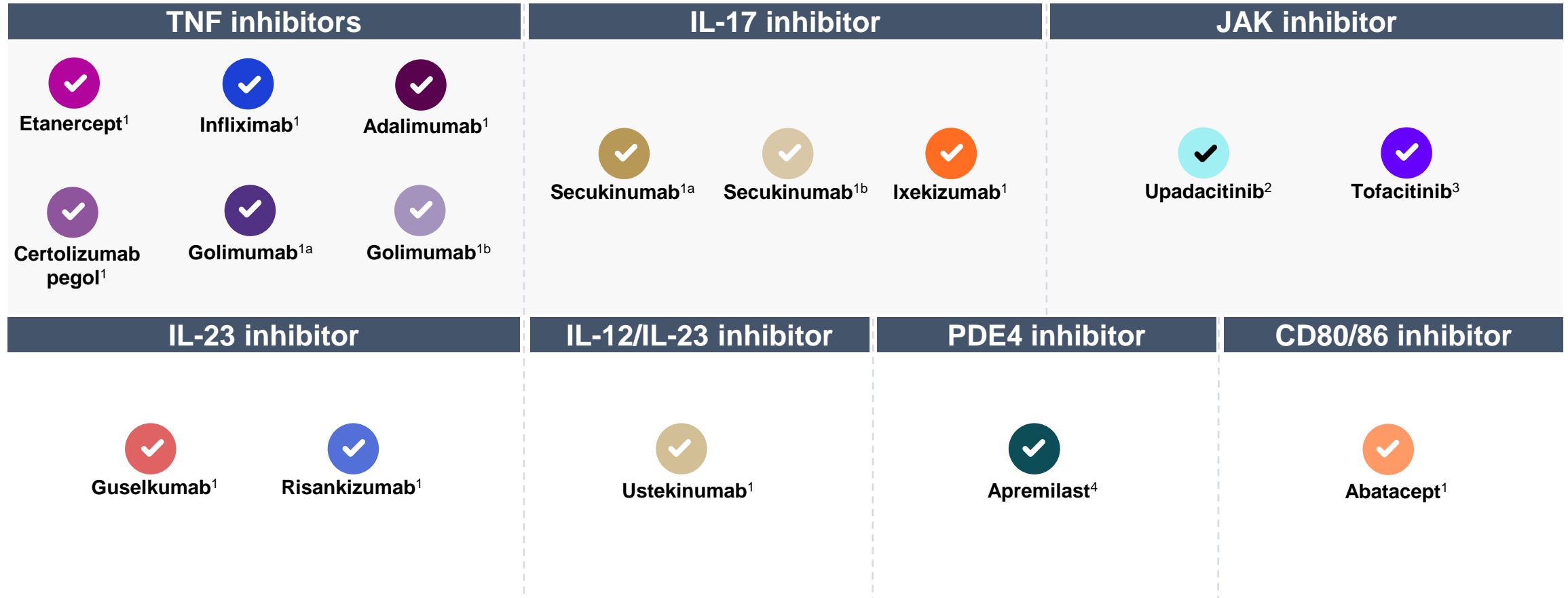


Psoriatic disease may involve co-management between NP/PAs, rheumatologists, dermatologists and their patients³

NP=Nurse Practitioner; PA=Physician Assistant.

1. Armstrong A, et al. *Adv Ther.* 2022;39(6):2657-2667. 2. Lim I, et al. *Rheumatol Ther.* 2021;8(2):761-774. 3. Chatterjee M, et al. *Indian J Dermatol.* 2022;67(4):479.

Current FDA-approved Treatment Options for PsA



^aPatients take themselves as an injection under the skin. ^bGiven in a doctor's office as an intravenous infusion.

CD=Cluster of Differentiation; FDA=Food and Drug Administration; IL=Interleukin; JAK=Janus Kinase; PDE4=Phosphodiesterase-4; PsA=Psoriatic Arthritis; TNF=Tumor Necrosis Factor.

1. <https://www.psoriasis.org/current-biologics-on-the-market/> (Accessed September 2023). 2. https://www.rxabbvie.com/pdf/rinvoq_pi.pdf (Accessed September 2023). 3. <https://labeling.pfizer.com/ShowLabeling.aspx?id=959> (Accessed September 2023). 4. https://www.pi.amgen.com/-/media/Project/Amgen/Repository/pi-amgen-com/Otezla/otezla_pi_english.pdf (Accessed September 2023).

Treatment Principles: GRAPPA, EULAR, ACR



Treatment Principles

Each clinical domain of PsA should be managed¹⁻⁵

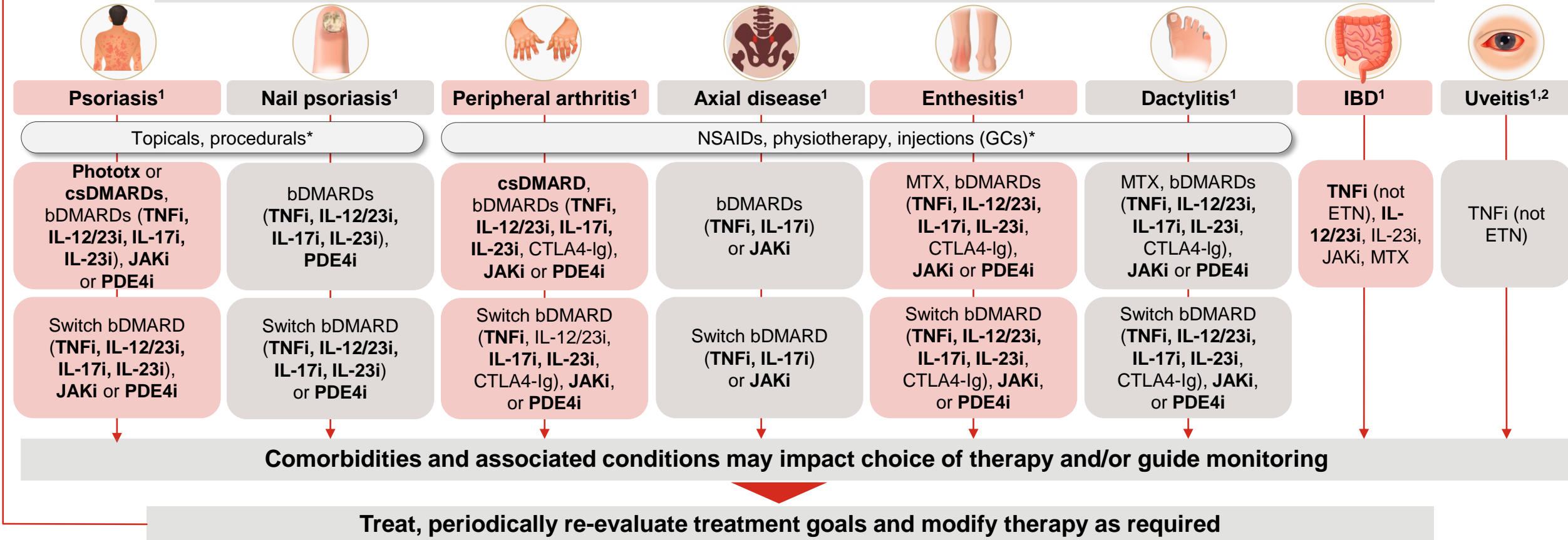
- Potential treatment targets include remission or low level of disease activity, though exact targets are not agreed on (eg, MDA [GRAPPA] or remission/LDA [EULAR])^{3,6,7}
- In managing patients with PsA, consideration should be given to^{3,6,7}:
 - Each musculoskeletal manifestation, with treatment decisions made accordingly
 - Non-musculoskeletal manifestations (skin, eye, gastrointestinal tract); comorbidities should also be considered

ACR=American College of Rheumatology; EULAR=European Alliance of Associations for Rheumatology; GRAPPA=Group for Research and Assessment of Psoriasis and Psoriatic Arthritis; LDA=Low Disease Activity; MDA=Minimal Disease Activity; PsA=Psoriatic Arthritis.

1. Coates LC, et al. *Arthritis Rheumatol.* 2016;68:1060-1071. 2. Coates LC, et al. *Arthritis Rheumatol.* 2018;70:345-355. 3. Gossec L, et al. *Ann Rheum Dis.* 2020;79:700-712. 4. Singh JA, et al. *Arthritis Rheumatol.* 2019;71:5-32. 5. Smolen JS, et al. *Ann Rheum Dis.* 2018;77:3-17. 6. Coates LC, et al. *Nat Rev Rheumatol.* 2022;18(8):465-479. 7. Coates L, Gossec L. *Joint Bone Spine.* 2023;90(1):105469.

GRAPPA 2021 Treatment Recommendations

Consider which domains are involved, patient preference, previous/concomitant therapies; choice of therapy should address as many domains as possible¹



*Conditional recommendation based on data from abstracts only. GRAPPA 2021 treatment schema adopted and recreated from Coates LC, et al. *Nat Rev Rheumatol.* 2021;18(8):465-479.

Note: The order of the products in the boxes is sorted by mechanism of action and does not reflect guidance on relative efficacy or suggested usage. Bold text indicates a strong recommendation, standard text a conditional recommendation. bDMARD=biologic Disease-Modifying Anti-Rheumatic Drug; CTLA4-Ig=Cytotoxic T-Lymphocyte Associated Protein 4; csDMARD=conventional synthetic Disease-Modifying Anti-Rheumatic Drug; GC=Glucocorticoid; GRAPPA=Group for Research and Assessment of Psoriasis and Psoriatic Arthritis; JAKi=Janus Kinase Inhibitor; MTX=Methotrexate; PDE4i=Phosphodiesterase 4 Inhibitor; TNFi=Tumor Necrosis Factor Inhibitor.

1. Coates LC, et al. *Nat Rev Rheumatol.* 2022;18(8):465-479. 2. Jadon DR, et al. *J Rheumatol.* 2023;50(3):438-450.

A Graduated Treatment Approach

2023 EULAR Recommendations For PsA

Symptomatic treatment¹⁻³

NSAIDs and local glucocorticoid injections^a as needed

csDMARD¹⁻³

Polyarthritis:
Initiate rapidly, administer with concomitant MTX in those with skin involvement

Mono/oligoarthritis:
Consider when poor prognostic factors are present eg, structural damage, high ESR/CRP, dactylitis, nail involvement

Enthesitis or predominantly axial disease:
No recommendation

bDMARD¹⁻³

TNFi, IL-17i, or IL-12/23i: IL-17i may be preferred for skin disease, where relevant^b

Other agents¹⁻³

JAKi: following bDMARD failure, or where bDMARDs are not appropriate
PDE4i: Treatment of mild disease if bDMARDs/JAKi are not appropriate

Switching¹⁻³

Switch^c to an **alternative bDMARD** (TNFi, IL-17i, or IL-12/23i), **JAKi, or PDE4i**

Tapering¹⁻³

Consider cautious tapering in **sustained remission**

^aNo glucocorticoids for axial disease. ^bFor peripheral arthritis with relevant skin involvement following an inadequate response to ≥ 1 csDMARD, an IL-17i or IL-12/23i may be preferred; for axial disease with relevant skin involvement following NSAID failure, an IL-17i may be preferred. ^cIn patients who fail to respond adequately to or are intolerant of a bDMARD.

Note: Abbreviations are available in speaker notes.

1. Gossec L, et al. *Ann Rheum Dis*. 2020;79:700-712. 2. Coates L, Gossec L. *Joint Bone Spine*. 2023;90(1):105469. 3. Michelsen B, et al. *Lancet Reg Health Eur*. 2023;33:100706.

Guideline Recommendations on Structural Damage/ Radiographic Progression in PsA



GRAPPA 2021¹

- Principles:
 - Ultimate goal of therapy includes: To optimize functional status, improve quality of life and well-being, and **prevent structural damage** to the greatest extent possible
 - The impact of disease on pain, function, quality of life, and **structural damage** should be examined
 - Treatment choices may be affected by various factors, including disease activity, **structural damage**, comorbid conditions, and previous therapies



ACR/NPF 2018²

- Structural damage/radiographic progression not mentioned



EULAR 2023^{3,4}

- Overarching principles include: The primary goal of treating patients with psoriatic arthritis is to maximise health-related quality of life, through control of symptoms, **prevention of structural damage**, normalisation of function and social participation; abrogation of inflammation is an important component to achieve these goals
- Recommendation 5: In patients with monoarthritis or oligoarthritis, particularly with poor prognostic factors such as **structural damage**, high erythrocyte sedimentation rate/CRP, dactylitis or nail involvement, a csDMARD should be considered
- Research agenda:
 - Defining prognostic factors related to risk of progressive disease, **structural damage** and bad functional outcome in early (and established) PsA
 - Defining the relationship between inflammation and **structural damage** in PsA
 - Structural data for apremilast

ACR=American College of Rheumatology; CRP=C-Reactive Protein; csDMARD=Conventional Synthetic Disease-Modifying Antirheumatic Drug; NPF=National Psoriasis Foundation; PsA=Psoriatic Arthritis.

1. Coates LC, et al. *Nat Rev Rheumatol.* 2022;18(8):465-479. 2. Singh JA, et al. *Arthritis Rheumatol.* 2019;71(1):5-32. 3. Gossec L, et al. *Ann Rheum Dis.* 2020;79(6):700-712. 4. Coates L, Gossec L. *Joint Bone Spine.* 2023;90(1):105469.

Treatment Approach: GRAPPA, EULAR, ACR



Treatment Approach

Treatment recommendations promote an escalation strategy¹⁻⁴

- Following failure of csDMARDs: TNFi, IL-12/23i, IL-17i, IL-23i, and JAKi are recommended as 1st line biologics⁵
 - EULAR: Recommend bDMARDs (with no distinction between TNFi, IL-12/23i, or IL-17i) in most scenarios^{3,6}
- In some cases (eg, peripheral arthritis, axial disease, enthesitis, dactylitis, or nail involvement), immediate treatment with biologics may be warranted⁵
 - EULAR: For relevant skin involvement, IL-17i or IL-12/23i may be preferred^{3,6}

ACR=American College of Rheumatology; bDMARD=Biologic Disease-Modifying Antirheumatic Drugs; csDMARD=Conventional Synthetic DMARD; EULAR=European Alliance of Associations for Rheumatology; GRAPPA=Group for Research and Assessment of Psoriasis and Psoriatic Arthritis; IL=Interleukin; JAKi=Janus Kinase Inhibitor; TNFi=Tumor Necrosis Factor Inhibitor.

1. Coates LC, et al. *Arthritis Rheumatol.* 2016;68:1060-1071. 2. Coates LC, et al. *Arthritis Rheumatol.* 2018;70:345-355. 3. Gossec L, et al. *Ann Rheum Dis.* 2020;79:700-712. 4. Singh JA, et al. *Arthritis Rheumatol.* 2019;71:5-32.

5. Coates LC, et al. *Nat Rev Rheumatol.* 2022;18(8):465-479. 6. Coates L, Gossec L. *Joint Bone Spine.* 2023;90(1):105469.

Large Proportion of Patients With PsA Fail to Meet Optimal Disease Outcome Goals

Based on MDA index,
~75% of PsA patients do not achieve
minimal disease activity¹

Based on cDAPSA,
~80% of PsA patients do not achieve remission¹

Challenges in the management of PsA disease

Disease heterogeneity²

No definitive diagnostic tests³

No consensus on preferred disease
activity measures²

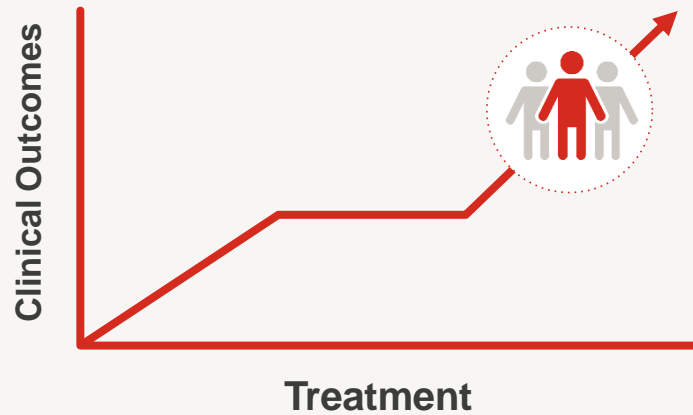
Patient and clinician discordance on
most important disease outcomes⁴

cDAPSA=Clinical Disease Activity Index for Psoriatic Arthritis; MDA=Minimal Disease Activity; PsA=Psoriatic Arthritis.

1. Smolen JS, et al. *Ann Rheum Dis*. 2021;80(11):1419-1428. 2. Ogdie A, et al. *Arthritis Care Res (Hoboken)*. 2020;72(Suppl 10):82-109. 3. FitzGerald O, et al. *Nat Rev Dis Primers*. 2021;7(1):59.

4. Richette P, et al. *Ann Rheum Dis*. 2022. POS0309. DOI:10.1136/annrheumdis-2022-eular.1355.

Tight Control of Disease Activity Improves Long-Term Joint Damage and Related Outcomes



Tight control of disease activity across multiple domains of PsA improves clinical outcomes and QoL¹



Benefits were demonstrated across articular, skin, and patient-reported outcomes



In the Corrona study, only **~1 in 4 patients** treated with biologics (>96% TNFi at baseline) achieved MDA²



In the DANBIO registry, **~50% of patients** who received TNFi as an initial treatment achieved a clinical response within 6 months^{a,3}



Despite the availability of treat-to-target strategies, many patients may be **undertreated⁴**

^aData from the DANBIO registry reports an ACR50 or EULAR good response within 6 months. ACR50=American College of Rheumatology 50; EULAR=European Alliance of Associations for Rheumatology; MDA=Minimal Disease Activity; PsA=Psoriatic Arthritis; QoL=Quality of Life; TNFi=Tumor Necrosis Factor Inhibitor. 1. Coates LC, et al. *Lancet*. 2015;386:2489-2498. 2. Mease PJ, et al. *RMD Open*. 2018;4:e000638. 3. Glinborg B, et al. *Arthritis Rheum*. 2011;63:382-390. 4. Dures E, et al. *RMD Open*. 2020;6(1):e001083.

Unmet Treatment Needs

1

While treatment guidelines recommend treating all domains to remission or low disease activity, many patients do not achieve these goals¹⁻³

2

Not all treatments are effective across all domains of PsA^{4,5}

3

csDMARDs are recommended prior to biologics with limited evidence supporting their use⁶

4

Lack of effectiveness cited as the most common reason for discontinuation of TNFi therapy⁷

5

There is a need for therapies with different MoA that can offer effectiveness across all domains in all populations affected with the disease, including TNFi-IR patients⁷

csDMARD=Conventional Synthetic Disease-Modifying Antirheumatic Drug; MoA=Mechanism of Action; PsA=Psoriatic Arthritis; TNFi=Tumor Necrosis Factor inhibitor; TNFi-IR=Tumor Necrosis Factor Inhibitor Inadequate Responder.
1. Coates LC, et al. *Arthritis Rheumatol.* 2018;70:345-355. 2. Coates LC, et al. *J Rheumatol.* 2019;46:38-42. 3. Gossec L, et al. *J Rheumatol.* 2018;45:6-13. 4. Mease P. *Clin Exp Rheumatol.* 2015;33(5 Suppl 93):S104-S108.
5. Smolen JS, et al. *Ann Rheum Dis.* 2018;77:3-17. 6. Jacobs ME, et al. *Rheumatology (Oxford).* 2021;60(2):780-784. 7. Mease PJ, *RMD Open.* 2019;5:e000880.

Conclusions



The burden of PsA can negatively impact patients' wellbeing across all disease domains

PsA is associated with functional impairment and lower QoL, as well as a number of medical comorbidities

Patients with PsA reported to have greater healthcare costs than patients with psoriasis

Tight control of disease activity across multiple domains of PsA improves clinical outcomes and QoL

Most recommendations promote an escalation strategy starting with NSAIDs>DMARDs> biologics but in some cases (eg, severe axial disease or enthesitis) immediate treatment with biologics may be warranted

Treatment principles suggest each clinical domain of PsA should be managed

US Medical Education

For additional resources on psoriatic arthritis- scan the code



Lilly

Prescribing Information

Please scan the QR code to access the relevant prescribing information



Certolizumab pegol
USPI



Secukinumab USPI



Etanercept USPI



Adalimumab USPI



Abatacept USPI



Apremilast USPI



Infliximab USPI



Upadacitinib USPI



Golimumab USPI^a



Golimumab USPI^b



Risankizumab USPI



Ustekinumab USPI



Ixekizumab USPI



Guselkumab USPI



Tofacitinib USPI

^aPatients take themselves as an injection under the skin. ^bGiven in a doctor's office as an intravenous infusion.