Received: 9 August 2025 | Accepted: 29 October 2025

DOI: 10.1111/jdv.70263

GUIDELINES

French guidelines on systemic treatments for moderate-to-severe psoriasis in adults: Update 2025

Marie Masson Regnault[1,a] | Emilie Brenaut[2,a] | Marie-Emeline Marniquet[3,b] | Carla Berthault[3,b] | Lea Canoen[2,b] | Clarisse Marcombes[4,b] | Audrey Melin[4,b] | Raphaël Ouakrat[4,b] | Julie Charles[5,b] | Stephane Mouret[5,b] | Olivier Potie[5,b] | Laetitia Penso[6,b] | Laura Pina Vegas[7,8,b] | Guillaume Larid[9,b] | Marine Roux[10,b] | Colombe Bougeard[10,b] | Sandy Sylvain[10,b] | Clara Labonne[10,b] | Tania Randriamiarana[10,b] | Da Hee Pitaud[10,b] | Floriane Etheve[10,b] | Jeremy Gottlieb[11,a] | Laurie Gouillon[12,b] | Marine Chastagner[12,b] | Emilie Sbidian[4,8,b] | Hélène Aubert[3,a] | on behalf of the Psoriasis Research Group of the French Society of Dermatology (Groupe de Recherche sur le Psoriasis de la Société Française de Dermatologie)

[1]Department of Dermatology, Polyclinique Francheville, Périgueux, France

[2]Department of Dermatology, CHU de Brest, Brest, France

[3]Department of Dermatology, CHU de Nantes, Nantes, France

[4]Department of Dermatology, CHU Henri Mondor, Créteil, France

[5]Department of Dermatology, CHU de Grenoble, Grenoble, France

[6]Department of Epidemiology, Université Paris-Est Créteil (UPEC), Créteil, France

[7]Department of Rheumatology, Hôpital Henri Mondor (AP-HP), Créteil, France

[8]Epidemiology in Dermatology and Evaluation of Therapeutics (EpiDermE) - EA 7379, Université Paris Est Créteil, Créteil, France

[9]Department of Rheumatology, CHU de Poitiers, Poitiers, France

[10]Department of Dermatology, CHU de Poitiers, Poitiers, France

[11]Department of Dermatology, CH Georges Renon, Niort, France

[12]Department of Dermatology, CHU Lyon, Lyon, France

Correspondence
Hélène Aubert, Dermatology Department, Nantes University Hospital, 1, place Alexis-Ricordeau, Nantes, France.
Email: helene.aubert@chu-nantes.fr

Abstract

The current French guidelines for the treatment of psoriasis date from 2019 and do not include the most up-to-date interventions. The Psoriasis Research Group of the French Society of Dermatology has developed new guidelines to provide updated decision-making algorithms for the systemic treatment of adult patients with moderate-to-severe psoriasis. The algorithms were created following a thorough review of existing psoriasis treatment guidelines and recent publications on new systemic therapies not included in previous recommendations. They propose updated treatment strategies that combine established and emerging systemic therapies for patients with plaque psoriasis and psoriatic arthritis. The working group recommends methotrexate, adalimumab or ustekinumab as the primary

[a]For the Psoriasis Research Group of the French Society of dermatology.

[b]For the working group.

systemic treatment for patients with psoriasis without symptomatic comorbidities. Additionally, the guidelines include specific recommendations for long-term management in cases of insufficient response or low disease activity, as well as for treating specific types of psoriasis and managing patients with comorbid conditions or those planning a pregnancy.

KEYWORDS
arthritis, atherosclerosis, biological therapy, depression, diabetes mellitus, guidelines, heart diseases, hepatitis B, hepatitis C, HIV infections, inflammatory bowel diseases, kidney diseases, liver diseases, multiple sclerosis, neoplasms, obesity, pregnancy, psoriasis, psoriatic, surgical procedures, transplant recipients, tuberculosis, vaccination

INTRODUCTION

The last French guidelines for systemic treatment of psoriasis were published in 2019. Since then, there have been notable advances in therapeutic options available for the treatment of psoriasis and psoriatic arthritis (PsA). Several new drugs are now available, including inhibitors of the p19 unit of interleukin-23 (IL-23p19) and of tyrosine kinase 2 (TYK2) inhibitor (i).

Objectives

This review aims to develop guidelines that include the new systemic treatments and their regimens and provide a systemic treatment algorithm that includes non-targeted systemic treatments, targeted synthetic and biologic treatments for moderate-to-severe psoriasis in adults without symptomatic comorbidities. Another objective includes the provision of guidance on the systemic treatment options according to types of psoriasis and/or specific populations or comorbidities. Topical treatments and the treatment of psoriasis in children are not discussed in these guidelines.

Target audience

The guidelines were developed to assist dermatologists, rheumatologists and other clinicians involved in the care of patients with psoriasis with or without PsA. The guidelines will also assist specialist nurses and allied health professionals in the assessment of treatment response, drug sequencing and switching and will provide information to people with psoriasis who are interested in management guidance of their disease.

Why was this study undertaken?

- This paper presents the updated French recommendations for moderate-to-severe plaque psoriasis in adults.

What does this study add?

- The working group suggests that adalimumab or ustekinumab may be offered as first-line treatments to methotrexate.
- For very severe psoriasis (body surface area (BSA) >50%) and high-burden disease, treatment with IL-23i or IL-17i may be prescribed as first-line systemic treatment.

What are the implications of this study for disease understanding and/or clinical care?

- This update to the recommendations gives dermatologists a clear therapeutic algorithm incorporating the latest treatments, tailored to patients' comorbidities.

METHOD

The Psoriasis Research Group (GrPso) of the French Society of Dermatology initiated a standardized recommendation process for psoriasis. A multidisciplinary working group (WG) composed of 22 physicians (dermatologists, rheumatologists, immunologists and general practitioners) working with three members of the GrPso (HA, MMR, EB) was formed. Five out of 22 WG members presented conflicts of interest (one as a speaker; others have been invited to attend conferences) (Appendix S1). A strict methodology was followed[1]; the framework of the recommendations was defined by French experts in the field (members of the GrPso) with both private- and hospital-based activities working with patient associations that support people with psoriasis (France Psoriasis foundation) (Table 1). These guidelines are an update of the French guidelines published in 2019. The systematic approach to assess and adapt existing guidelines (ADAPTE) method[2] was used for therapeutic agents already incorporated into existing guidelines, such as phototherapy, 'non-targeted' treatments (such as acitretin, ciclosporin, methotrexate), biologicals targeting tumour necrosis factor (TNF) (such as adalimumab, etanercept, certolizumab pegol, infliximab) and biologicals targeting IL-12/23p40 (such as ustekinumab), IL-17A (such

TABLE 1 Overview of topics and key questions in relation to comorbidities and special patient populations issues.

Topic	Question(s)
Particular forms or location of psoriasis	How should psoriasis patients with generalized pustular psoriasis be managed? How should patient with nail psoriasis be managed? How should psoriasis patients with erythrodermic psoriasis be managed? How should psoriasis patients with palmoplantar pustular psoriasis be managed?
Psoriatic arthritis	How should psoriasis patients with concomitant psoriatic arthritis be managed?
Atherosclerotic cardiovascular	How should psoriasis patients with risk of atherosclerotic cardiovascular disease be managed?
Heart disease	How should psoriasis patients with heart failure be managed?
Diabetes	How should psoriasis patients with diabetes be managed?
Obesity	How should psoriasis patients with obesity be managed?
Depression	How should psoriasis patients with depression or psychiatric disorders be managed?
Kidney disease	How should psoriasis patients with kidney impairment be managed?
Liver disease (fibrosis, cirrhosis)	How should psoriasis patients with liver disease (fibrosis, cirrhosis) be managed?
Inflammatory bowel disease	How should psoriasis patients with inflammatory bowel disease be managed?
Neurology	Which treatments are appropriate for psoriasis patients with multiple sclerosis?
Transplant patients	How to manage psoriasis in patients with organ transplant?
Cancer	What is the risk of cancer associated with systemic treatments in patients with psoriasis? How to manage psoriasis in patients with a history of cancer or active cancer?
Tuberculosis	How to screen for tuberculosis before and during biologic treatment? How to manage psoriasis in patients with positive tuberculosis test results?
HIV infection	How to manage psoriasis in patients with HIV infection?
Viral hepatitis	How to manage psoriasis in patients with viral hepatitis?
Vaccinations	How should vaccinations in people with psoriasis who are planning or receiving systemic immune-modifying treatment be managed?
Surgery and perioperative period	How should psoriasis patients be managed in the perioperative period?
Trying to conceive, pregnancy, breastfeeding and paternal use	How should female psoriasis patients who wish to become pregnant in the near future be treated? How should women with psoriasis who are pregnant be treated? How should breastfeeding women with psoriasis be treated? How should men with psoriasis who are trying to conceive be treated?

TABLE 2 Expression of the strength of the recommendations suggested by the GRADE Working Group.

Strength of recommendation	Wording	Symbols	Implications
Strong recommendation for the use of an intervention	'**We recommend** . . .'	↑↑	We believe that all or almost all informed people would make that choice. Clinicians will have to spend less time on the process of decision-making and may devote that time to overcome barriers to implementation and adherence. In most clinical situations, the recommendation may be adopted as a policy.
Weak recommendation for the use of an intervention	'**We suggest** . . .'	↑	We believe that most informed people would make that choice, but a substantial number would not. Clinicians and health care providers will need to devote more time on the process of shared decision-making. Policy makers will have to involve many stakeholders and policy making requires substantial debate.
No recommendation with respect to an intervention	'**We cannot make a recommendation** with respect to . . .'	0	At the moment, a recommendation in favour or against an intervention cannot be made due to certain reasons (e.g. no reliable evidence data available, conflicting outcomes, etc.)
Weak recommendation against the use of an intervention	'**We suggest against** . . .'	↓	We believe that most informed people would make a choice against that intervention, but a substantial number would not.
Strong recommendation against the use of an intervention	'**We recommend against** . . .'	↓↓	We believe that all or almost all informed people would make a choice against that intervention. This recommendation can be adopted as a policy in most clinical situations.

as ixekizumab, secukinumab), IL-17A and IL-17F (such as bimekizumab), IL-17 receptor-A (IL-17RA) (such as brodalumab) and IL-23p19 (such as guselkumab, risankizumab, tildrakizumab), as well as synthetic targeted therapies (such as apremilast, deucravacitinib). The WG systematically reviewed the literature to identify existing recommendations on psoriasis in the MEDLINE database from January 2017–December 2023 (the search strategy is outlined in Appendix S2). We also incorporated the updated EULAR recommendations for 2024, as these were published after the

TABLE 3 Efficacy and safety data for biological or targeted synthetic therapies in psoriasis.

Target	Treatment (administration mode)	Administration scheme		Efficacy* (PASI 90 to W24)	Safety*	Survival time	
		Initial treatment	Maintenance			At 1 y	At 3 y
TNF	Infliximab (IV, pen, syringe)	IV: 5 mg/kg W0, W2, W6	IV: 5 mg/kg / 8W	 53%	 5.3%	56%	26%
	Etanercept (pen, syringe)	50 mg 2x per W for 12 W	50 mg / W	 24%	 1.7%	49%	19%
	Adalimumab (pen, syringe)	80 mg W0, 40 mg W1	40 mg / 2W	 48%	 2.5%	56%	26%
	Certolizumab (pen, syringe)	400 mg W0, W2, W4	200 mg (or 400 mg) / 2W	 43%	 2.6%	52%	27%
IL-12/23	Ustekinumab (pen, syringe)	45 mg W0, W4 if patient is >100 kg: 90mg	45 mg / 12W	 51%	 2.3%	76%	41%
IL-17	Secukinumab (pen, syringe)	300 mg W0, W1, W2, W3, W4	300 mg / 4W	 69%	 2.8%	67%	37%
	Ixekizumab (pen, syringe)	2 x 80 mg W0 80 mg W2, W4, W6, W8, W10, W12	80 mg / 4W	 72%	 2.3%	70%	41%
	Bimekizumab (pen, syringe)	320 mg W0, W4, W8, W12, W16	320 mg / 8W	 86%	 1.6%	-	-
	Brodalumab (syringe)	210 mg W0, W1, W2	210 mg / 2W	 70%	 1.7%	69%	31%
IL-23	Guselkumab (pen, syringe)	100 mg W0, W4	100 mg / 8W	 67%	 2.7%	78%	-
	Risankizumab (pen, syringe)	150 mg W0, W4	150 mg / 12W	 72%	 2.7%	82%	
	Tildrakizumab (pen, syringe)	100 mg W0, W4 Or 200 mg if high-disease burden and patient is overweight)	100 mg / 12W	 37%	 1.3%	-	-
PDE4	Apremilast (oral)	Start with 10 mg on day 1, increasing by 10 mg daily over one week until reaching 30 mg twice daily	30 mg twice daily	 12%	 1.8%	-	-
TYK2	Deucravacitinib (oral)	6 mg/d	6 mg/d	 32%	 1.9%	-	-

*The efficacy and safety profiles of various biologic therapies for psoriasis, based on the findings of the Cochrane meta-analysis 'Systemic pharmacological treatments for chronic plaque psoriasis: a network meta-analysis'.(Sbidian, 2023, PMID: 37436070) figures quoted are based on anticipated absolute effects derived from network meta-analyses of licensed biologic doses only. Efficacy and safety data are calculated by subtracting placebo efficacy from full efficacy. Safety is the proportion of patients with serious adverse events at the induction phase. IL, interleukin; PASI, Psoriasis Area and Severity Index; PDE4, phosphodiesterase 4; TNF, tumour necrosis factor; TYK2, tyrosine kinase 2; W, week.

literature review incorporating the previous version of the guidelines.[3] For some treatments and/or specific situations, in the absence of existing recommendations, systematic reviews of existing meta-analyses were carried out January 2017–January 2025 (if no data were available, systematic reviews were carried out of randomized controlled trials or large-scale prospective or retrospective studies) using MEDLINE and the Cochrane Library databases. The search strategies are available in Appendix S3. Then, the methodology and risk of bias of the guidelines were independently assessed by two members of the WG using Appraisal of Guidelines for REsearch & Evaluation II (AGREE) scale for guidelines[4] and Assessing Methodological quality for SysTemAtic Reviews (AMSTAR) for systematic reviews.[5]

TABLE 4 Summary of the clinical assessments associated with non-targeted systemic treatments and targeted therapies for psoriasis.

	Non-targeted systemic treatments			
Management	**Phototherapy**	**Methotrexate**	**Ciclosporin**	**Acitretin**
Information for the patient	• Long-term risk of skin cancer, synergistic effects of additional UV exposure during leisure time or self-treatment. • Make sure that the patient wears goggles and protection for chronic sun-exposed areas (face, neck) and genital regions during the session.	• Adequate contraception for women. After the end of treatment, continued contraception is recommended for only 1 day in women (contraception should be continued until the end of treatment and conception is possible as soon as contraception is stopped). • Inform the patient on how to take the drug (OW) and about early symptoms of AE.	• Ciclosporin is permitted during pregnancy but may increase the probability of pregnancy-related complications. Reliable contraception is advised (note that the efficacy of progesterone-containing contraceptives can be reduced). Avoidance of excessive sun exposure. • Follow national cancer screening recommendations (breast, cervix, colon)	• Teratogenic risk and necessity of long-term effective contraception (at least 3 years after discontinuation). Provide written information. • Alcohol avoidance. • Blood donation is forbidden during treatment and for up to three years after cessation of treatment. • Contact lenses should be used with caution.
Clinical examination before treatment	Objective assessment of the disease (PASI/PGA/BSA/arthritis/DLQI) • Preneoplastic skin lesions and malignant skin lesions. • Dysplastic nevi. • Concomitant medication (phototoxic and immunosuppressive drugs).	• Past or active infection. • Medical history of liver disease and respiratory failure. • Concomitant medication. • Vaccination status.	• Medical history of arterial hypertension, malignancies, renal and liver diseases. • Past or active infection. • Malignancies. • Blood pressure measurement on two separate occasions. • Concomitant medication. • Vaccination status.	• Concomitant medication. • Medical history of liver disease and metabolic syndrome.
Clinical examination during treatment	Objective assessment of the disease (PASI/PGA/BSA/arthritis/DLQI) and evaluation of patient satisfaction • Control erythema before dosage and increase and record UV dose. • Record the cumulative UV dose and the number of sessions. • Lifelong screening of skin cancer is mandatory.	• AE: fatigue, nausea, vomiting, gastro-intestinal and mucosal ulcerations, signs of liver cirrhosis and respiratory failure, persistent cough. • Active or chronic infection. • Cancer.	• AE: signs of renal impairment, nausea, diarrhoea, hypertrichosis, gingival hyperplasia, paraesthesia. • Blood pressure measurement. • Active or chronic infection. • Cancer. • Skin cancer screening. • Regular gynaecological screening for papillomavirus infection.	• AE: hypervitaminosis A (cheilitis, xerosis), headache, conjunctivitis.

	Targeted therapies		
Management	**TNFi**	**Biologics (except TNFi) and deucravacitinib**	**Apremilast**
Information for the patient	• Possible weight gain during treatment. • Increased risk of infection. • Evaluate contraception*. • Follow national cancer screening recommendations (breast, cervix, colon). • Rare cases of hypoglycaemia during treatment in diabetic patients.	• Increased risk of infection (notably fungal infections for IL-17i). • Evaluate contraception*. • Follow national cancer screening recommendations (breast, cervix, colon).	• Risk of diarrhoea and nausea after treatment initiation. • Increased risk of infection. • Risk of depression. • Evaluate contraception*.

TABLE 4 (Continued)

Management	Targeted therapies		
	TNFi	**Biologics (except TNFi) and deucravacitinib**	**Apremilast**
Clinical examination before treatment	Objective assessment of the disease (PASI/PGA/BSA/arthritis/DLQI) • BMI* • Known chronic heart failure or heart failure symptoms. • Adenopathy. • Active/latent/exposure to tuberculosis*. • Active or chronic infection. • Cancer. • Multiple sclerosis. • Lupus erythematosus. • Live vaccine: recent? In the future?	• BMI* • Cardiovascular risk factors using PREVENT or SCORE score*. • Adenopathy. • Active/latent/exposure to tuberculosis. • Active or chronic infection. • Cancer*. • Live vaccine: recent? In the future? Only for IL-17i: • Inflammatory bowel disease (personal or familial history)*. • Candidiasis. • Only for brodalumab: • Psychiatric disorders, Suicide attempts*.	• BMI* • Chronic infection. • Adenopathy. • Psychiatric disorder*. • Suicide attempts*. • Cancer*.
Clinical examination during treatment	Objective assessment of the disease (PASI/PGA/BSA/arthritis/DLQI) and evaluation of patient satisfaction • Weight gain. • Injection-site reactions. • Infections. • Cancer (particularly non-melanoma skin cancer).	• Cardiovascular risk factors and events (MACE). • Injection-site reactions. • Infections. • Cancer (particularly non-melanoma skin cancer). Only for IL-17i: • Diarrhoea, weight loss. • Only for brodalumab: • Psychiatric disorders, Suicide attempts.	• Diarrhoea. • Weight loss. • Psychiatric disorder/depression. • Suicide attempts. • Infection. • Cancer.

Abbreviations: AE, adverse event; BMI, body mass index; BSA, body surface area; DLQI, dermatology life quality index; OW, once weekly; MACE, major adverse cardiovascular event; PASI, psoriasis area severity index; PGA, physician global assessment.

*See specific section.

A total of 18 existing guidelines obtained a total AGREE II score ≥ 70 and were considered for the present guidelines (Appendices S4–S6).[6–21] After analysing the methods, objectives, results and biases of included studies, the WG established recommendations using phrasing suggested by the GRADE Working Group to standardize the wording of all recommendations (see Table 2).[22] Details of the data used for all the recommendations are available in the Appendix S7. Then, seven experts (Appendix S1) were interviewed specifically for recommendations with low certainty of evidence, and their comments were incorporated into the manuscript as 'expert opinion'. Last, the WG submitted its recommendations to a multidisciplinary panel of 27 reviewers (mainly dermatologists or practitioners involved in the management of associated comorbidities), such as gastroenterologists and rheumatologists, as well as two patients with psoriasis (one dermatologist did not want to be cited in the acknowledgements), who scored each recommendation from 1 to 9 (1 = total disagreement; 9 = total agreement) to assess the internal consistency of the recommendations and their practical applicability. Ratings had to be based on a synthesis of the published literature attached to the questionnaire and the reviewers' experience in the relevant field. If at least 80% of the reviewers gave a score of ≥7, the recommendation was retained. Otherwise, the recommendation was discussed again within the WG and possibly modified before being resubmitted to the reviewers.

GUIDELINES ON SYSTEMIC TREATMENTS FOR MODERATE-TO-SEVERE PSORIASIS

Systemic treatments options for psoriasis

The specificity of each systemic treatment for psoriasis (dosing scheme, efficacy, adverse events, contraindications) is listed in Appendices S8 and S9. More-frequent side effects have been collected in the SmPC (summary of product characteristics). In the post-clinical data, newer generation drugs have fewer reported side effects than older treatments. For each intervention, the short-term (weeks 8–24) efficacy and safety of the drugs were presented using Psoriasis Area and Severity Index 75% (PASI 75) and PASI 90, and the occurrence of serious adverse events was noted based on the Cochrane systematic review and network meta-analyses,[23] respectively; the maintenance term efficacy was determined using median persistence (time from initiation to discontinuation) at 1, 3 and 5 years based on the French health insurance database.[24] Results are shown in Table 3.

Clinical, biological and imaging pretreatment procedures

Based on the existing guidelines and expert opinion, we recommend clinical, biological and imaging pretreatment and follow-up procedures presented in Tables 4 and 5.

Treatment choice: systemic treatments for plaque psoriasis in patients without symptomatic comorbidities

To date, in France as well as in other European countries, the reimbursement of psoriasis-specific drugs is restricted

TABLE 5 Summary of the biological and imaging pretreatment procedures or surveillance associated with non-targeted systemic treatments and targeted therapies for psoriasis.

	Methotrexate	Ciclosporin	Acitretin	Biologics	Apremilast	Deucravacitinib
Blood count	**X** W2, W4, then every 3 mo	**X** W4		**X** once a year*	**X**	**X** W4, then every 3 mo
AST, ALT, GGT, bilirubin	**X** W2, W4, then every 3 mo	**X** W4, W12	**X** W4, W8, then every 3 mo	**X** Only for INFI IV: before every infusion Once a year*	**X**	**X** W4, then every 3 mo
Creatinine	**X** W2, W4, then every 3 mo	**X** W2, W4, then every mo	**X**	**X** Once a year*	**X**	**X** W4, then every 3 mo
Fasting blood glucose (if elevated, up HbA1c dosage)	Once a year*	**X** Then every 3 mo	Once a year*	Once a year*	Once a year*	Once a year*
Plasma protein electrophoresis	**X**			**X** Once a year*		
Cholesterol, triglyceride	Once a year*	**X** W4, W12	**X** W4, then every 3 mo	Once a year*	Once a year*	**X** W4, then every 3 mo
CPK						**X**
Pregnancy test	Optional	Optional	Contraindicated in women of child-bearing age	Optional	Optional	Optional
HBV/HCV	**X**	**X**		**X**		**X**
HIV	**X**	**X**		**X**		**X**
IGRA				**X**		**X**
Anti-nuclear antibodies				For TNFi **X**		
Screening for liver fibrosis	As a pretreatment, blood-based non-invasive test (BBNIT) (e.g. FIB-4, NAFLD fibrosis score or APRI score) should be performed in psoriasis patients at high risk or with liver test abnormalities. In treated patients, every 1-2 years Fibroscan® should be performed in psoriasis patients at high risk or with BBNIT suggesting liver fibrosis or liver test abnormalities.					
Chest X-Ray or CT scan low dose	**X**			**X**		**X**

We **suggest against** using liver ultrasound as a systematic pretreatment test before initiation of methotrexate in patients with normal liver function tests and having no metabolic syndrome.	↓
We **suggest**, when methotrexate is prescribed, screening for liver fibrosis with blood-based non-invasive test (e.g. FIB-4, NAFLD fibrosis score, APRI score) for psoriasis patients at high risk, such as patients >50 years or with BMI > 30kg/m², diabetes mellitus, hypertension, dyslipidaemia, metabolic syndrome, regular alcohol consumption or liver test abnormalities.	↑
We **suggest against** a systematic dosage of serum magnesium or uric acid levels in psoriasis patients with no comorbidity before initiation of ciclosporin .	↓
We **recommend against** a systematic dosage of calprotectin when IL-17i is considered.	↓↓

Abbreviations: ALT, alanine aminotransferase; APRI, AST to platelet ratio index; AST, aspartate aminotransferase; BBNIT, blood-based non-invasive test; CPK, creatine phosphokinase; CRP, C-reactive protein; FIB-4, fibrosis-4; GGT, γ-glutamyl transferase; HbA1c, glycated haemoglobin; HBV, hepatitis B virus; HCV, hepatitis C virus; IGRA, interferon-γ release assay; mo, month; NAFLD, non-alcoholic fatty liver disease; PIIIP, procollagen III peptide; TST, tuberculin skin test; W, weeks; X, pretreatment recommended.

*Depending on comorbidities.

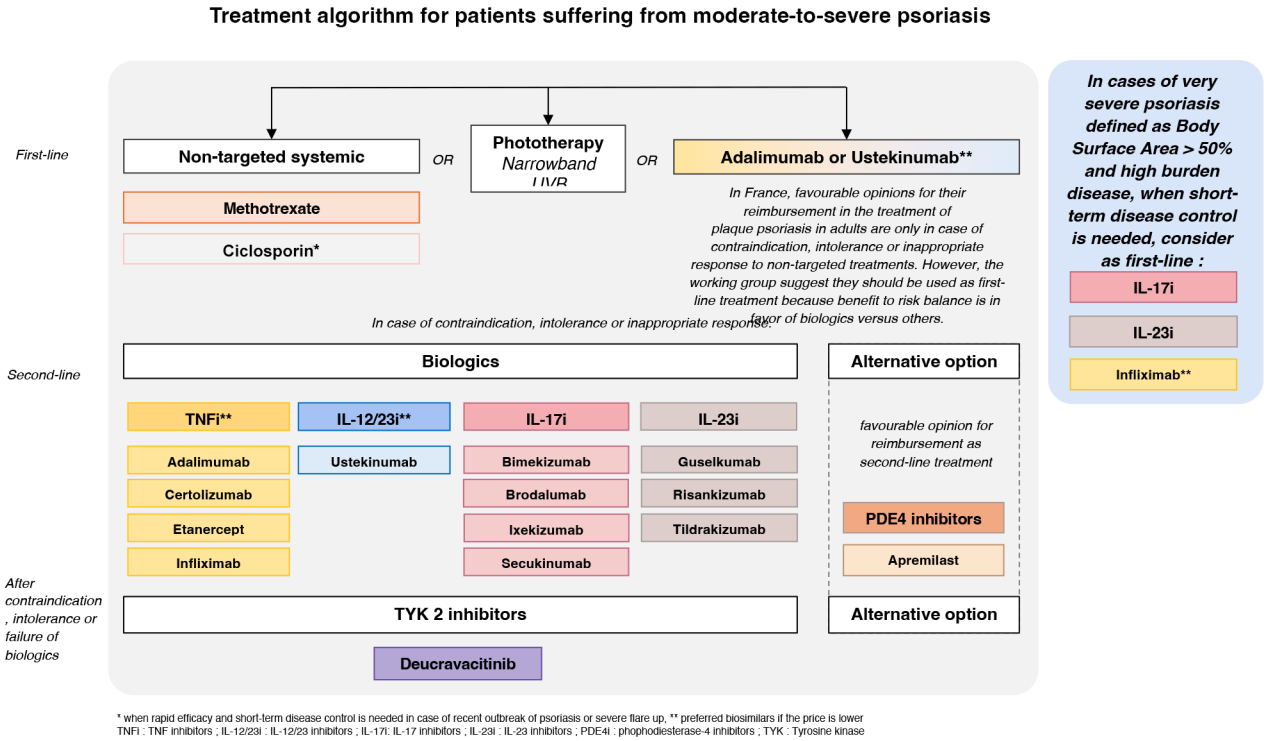


FIGURE 1 Treatment algorithm for patients with moderate-to-severe psoriasis.

to patients who have failed at least one non-targeted treatment (including methotrexate, ciclosporin, acitretin or phototherapy) or have intolerance or contraindications to them. However, in view of the benefit-to-risk ratio of the oldest psoriasis-specific drugs (which have very reassuring cumulative safety data), the working group suggests that reimbursed first-line access for psoriasis-specific drugs is desirable. Indeed, taking into account the higher efficacy and clinical added value of psoriasis-specific drugs compared with non-targeted systemic treatments,[22] the benefit-to-risk balance and the availability of biosimilars for the oldest biologics (TNF inhibitors (TNFi) or IL-12/23 inhibitors (IL12/23i)), which reduces treatment cost, the WG proposes methotrexate or adalimumab or ustekinumab as first line of systemic treatment for psoriasis patients without symptomatic comorbidities (Figure 1). Ciclosporin may be used for patients requiring rapid efficacy and short-term control of their condition, but the WG reiterated that methotrexate remains the standard non-targeted treatment, in line with the previous guideline (2019). For very severe psoriasis (body surface area (BSA) >50%) and high-burden disease, we suggest considering IL-17i, IL-23i or infliximab as first-line treatment.

Long-term management

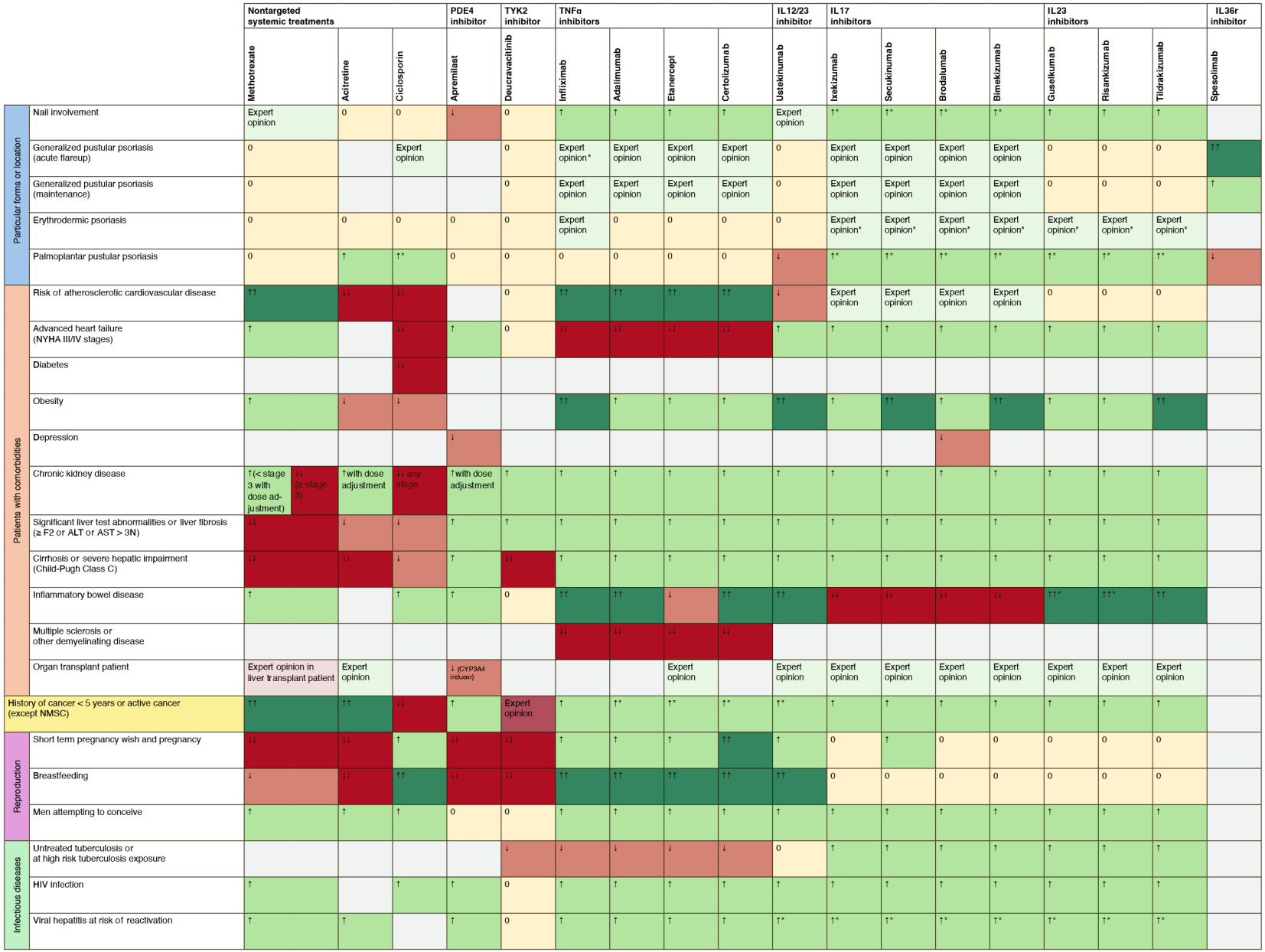
Our recommendations for long-term management are presented in Table 6. In cases of an insufficient response to treatment, therapeutic optimization may be considered.

TABLE 6 Recommendations for long-term management of psoriasis.

Recommendations for long-term management of psoriasis	
We recommend considering dose reduction strategies for patients treated with biologics with controlled* psoriasis for at least one year	↑↑
We suggest considering progressive biologic tapering with controlled* psoriasis: spacing injection or dosage reduction when possible (e.g. for ustekinumab, secukinumab, tildrakizumab)	↑
We suggest considering treatment optimization for biologics when a partial response is achieved taking the medico-economic balance into account when optimising rather than switching	↑

Complete remission or low activity (PASI<2)

Therapeutic optimization can be achieved by increasing the dose or reducing the interval between doses. Strategies of optimization of adalimumab, certolizumab, secukinumab and tildrakizumab have shown their efficacy in randomized controlled trials for obese patients or those with an insufficient response (Appendix S8). In daily practice, strategies of optimization are also used for other biologics (Appendix S9). It is important to note that there are limited safety data on off-label dosing regimens. In cases of complete remission or low disease activity (PASI<2), reducing the dose of biologics or discontinuing treatment may be considered. Dose reduction strategies can involve reducing doses or increasing the interval between doses. Dose reduction could offer potential benefits by decreasing the risk of adverse events and reducing the



*preferred. For perioperative period, vaccinations, see specific part.

FIGURE 2 Summary of the recommendations to be considered in patients with comorbidities or special circumstances.

TABLE 7 (A–D) Recommendations for patients with particular forms or locations of psoriasis.

A. Recommendations for nail psoriasis as the indication for treatment	
We recommend using a biologic as a first-line treatment.	↑↑
We suggest the use of methotrexate as first-line treatment.	Expert opinion
We suggest IL-17i as the preferred first-line biologic.	↑
We suggest the use of TNFi or IL-23i as alternative second-line biologic.	↑
We suggest the use of ustekinumab as an alternative second-line biologic.	Expert opinion
We suggest against the use of apremilast as possible treatment.	↓
We cannot make any recommendations regarding, ciclosporin, acitretin, deucravacitinib owing to the lack of efficacy data.	0

B. Recommendations for patients with generalised pustular psoriasis	
We recommend the use of spesolimab as a first-line treatment in cases of acute flare-up of generalised pustular psoriasis.	↑↑
We suggest, as an alternative to spesolimab, considering the use of TNFi (infliximab preferred) or IL-17i or ciclosporin in case of acute flare-up of generalised pustular psoriasis.	Expert opinion
We suggest the use of spesolimab as a first-line treatment in case of chronic evolution as maintenance treatment.	↑
We suggest the use of TNFi or IL-17i as a first-line treatment in cases of chronic evolution as maintenance treatment.	Expert opinion
We cannot make any recommendations regarding methotrexate, ustekinumab, IL-23i and deucravacitinib owing to the lack of efficacy data.	0

C. Recommendations for patients with erythrodermic psoriasis	
We recommend referring the patient to specialist centre to discuss hospitalisation.	↑↑
We suggest using IL-17i or IL-23i as a first-line treatment.	Expert opinion
We suggest using infliximab as an alternative option as first-line treatment.	Expert opinion
We cannot make recommendations regarding the use of methotrexate, ciclosporin, etanercept, adalimumab, certolizumab pegol, ustekinumab, deucravacitinib or apremilast.	0

D. Recommendations for patients with palmoplantar pustular psoriasis.	
We suggest IL-17i or IL-23i or ciclosporin as a preference for first line treatment.	↑
We suggest considering acitretin or local bath-PUVA (bath-psoralen + UVA) as alternative non-targeted treatment.	↑
We cannot make recommendations regarding the use of TNFi, deucravacitinib, methotrexate or apremilast.	0
We suggest against the use of ustekinumab and spesolimab in palmoplantar pustular psoriasis.	↓

burden and costs of biologics. This strategy should be considered after at least 1 year of treatment if the disease has been in remission or has shown low activity for several months. The modalities of dose reduction must be discussed with the patient, taking their preferences into account. Patients must be informed of the risk of relapse associated with dose reduction.

TABLE 8 (A–I) Recommendations for patients with comorbidities.

A. Recommendations for patients with risk of atherosclerotic cardiovascular disease	
We recommend clinical and biological explorations to evaluate the level of cardiovascular risk using PREVENT or SCORE2/SCORE2-OP score according to age, BMI, systolic blood pressure, active smoking, and biological data such as glycaemic loads, blood lipid panel, eGFR*.	↑↑
We recommend referring patients with psoriasis at high or very high cardiovascular risk to a cardiologist.	↑↑
We recommend methotrexate or TNFi as the preferred first-line treatment in patients with psoriasis and high/very high cardiovascular risk*.	↑↑
We suggest IL-17i as second-line biological treatment in patients with psoriasis and high/very high cardiovascular risk*.	Expert opinion
We cannot make any recommendations regarding deucravacitinib or IL-23i for patients with psoriasis and high/very high cardiovascular risk*.	0
We suggest against IL-12/23i as the preferred treatment in patients with psoriasis and high/very high cardiovascular risk*.	↓
We recommend against ciclosporin or acitretin as preferred treatments in patients with psoriasis and high/very high cardiovascular risk*.	↓↓

**In cases of concomitant congestive heart failure, also note the recommendations from the respective section. BMI, body mass index; eGFR, estimated glomerular filtration rate.*

B. Recommendations for patients with advanced heart failure	
We suggest using methotrexate, IL-12/23i, IL-17i, IL-23i or apremilast in patients with psoriasis and advanced heart failure (NYHA III/IV stages)*. Consider the algorithm to choose the first-line treatment.	↑
We cannot make any recommendations regarding deucravacitinib for patients with psoriasis and advanced heart failure (NYHA III/IV stages)*.	0
We recommend against using ciclosporin in patients with psoriasis and advanced heart failure (NYHA III/IV stages)*.	↓↓
We recommend against using TNFi in patients with psoriasis and advanced heart failure (NYHA III/IV stages)*.	↓↓

**In cases of concomitant ischaemic heart failure or high/very high cardiovascular risk, also note the recommendations from the specific section. NYHA, New York Heart Association.*

C. Recommendations for patients with diabetes*	
We recommend assessment of clinical data such as the weight, height, BMI and biological data such as glycaemic loads, blood lipid panel and hepatic enzyme in any patient at risk of metabolic syndrome.	↑↑
We recommend against using ciclosporin in people with diabetes.	↓↓

**We recommend referring to the specific section in cases of associated comorbidities. BMI, body mass index.*

D. Recommendations for obese patients*	
We recommend assessment of clinical data such as weight, abdominal circumference, height, BMI and biological data such as glycaemic loads, blood lipid panel and hepatic enzyme in any patient at risk of metabolic syndrome.	↑↑
We suggest considering the algorithm to choose the first-line treatment.	↑
We suggest monitoring weight gain when using TNFi.	↑
We recommend using TNFi, IL-12/23i, IL-23i or IL-17i or treatment with specific† or adjusted‡ posology if available.	↑↑
We suggest against using acitretin or ciclosporin in people in obese patients.	↓

**We recommend referring to the specific section in cases of associated comorbidities.†Infliximab, ustekinumab and tildrakizumab. ‡Secukinumab and bimekizumab. BMI, body mass index.*

TABLE 8 (Continued)

E. Recommendations for patients with history of depression and/or suicidal ideation	
We recommend being aware of signs and symptoms depression in patients with psoriasis and monitoring for symptoms of depression and/or suicidal ideation or anxiety during systemic treatments for psoriasis, especially in those with a history of any of the above.	↑↑
We suggest against the use of apremilast or brodalumab in patients with a history of depression and/or suicidal ideation.	↓

F. Recommendations for patients with chronic kidney disease	
We recommend working in collaboration with the nephrologist when prescribing systemic therapy in any psoriasis patient with chronic kidney disease of stage 3 (eGFR<30 mL/min/1.73 m²) or more.	↑↑
We suggest methotrexate* can be used in psoriasis patients with mild to moderate renal impairment (eGFR ≥30 – <60 mL/min/1.73 m²).	↑
We suggest using biologics, deucravacitinib or apremilast* or acitretin* in psoriasis patients with chronic kidney disease and all stages of renal impairment.	↑
We recommend against using methotrexate in psoriasis patients with chronic kidney disease and severe renal impairment (eGFR <30 mL/min/1.73 m²).	↓↓
We recommend against using ciclosporin in psoriasis patients with chronic kidney disease or renal impairment.	↓↓

**Careful dosing and/or dose adjustment may be needed*

G. Recommendations for patients with significant liver disease	
We recommend working in collaboration with the hepatologist when prescribing systemic therapy in psoriasis patients with concomitant severe liver disease (advanced liver fibrosis (F3–F4), cirrhosis or severe hepatic impairment (Child-Pugh Class C))	↑↑
We suggest screening for liver fibrosis with blood-based non-invasive test (e.g. FIB-4, NAFLD fibrosis score or APRI score) for psoriasis patients at high risk, such as patients >50 years or with BMI > 30kg/m², diabetes mellitus, hypertension, dyslipidaemia, metabolic syndrome or in case of liver test abnormalities.	↑
We suggest the use of biologics or apremilast in psoriasis patients with cirrhosis or advanced liver fibrosis (F3–F4).	↑
We suggest against the use of ciclosporin and acitretin as treatments for psoriasis in patients with persistent significant liver test abnormalities (ALT or AST > 3N).	↓
We recommend against the use of methotrexate as a treatment for psoriasis in patients with ≥F2 liver fibrosis stage or persistent significant liver test abnormalities (ALT or AST > 3N)	↓↓
We recommend against the use of acitretin and deucravacitinib as treatment for psoriasis in patients with cirrhosis or severe hepatic impairment (Child-Pugh Class C).	↓↓

ALT, alanine transaminase; APRI, AST to platelet ratio index; AST, aspartate transaminase; BMI, body mass index; FIB-4, Fibrosis-4; NAFLD, non-alcoholic fatty liver disease.

TABLE 8 (Continued)

H. Recommendations for patients with chronic inflammatory bowel disease.	
We recommend working in collaboration with the treating gastroenterologist when prescribing a systemic therapy in psoriasis patients with concomitant chronic inflammatory bowel disease	↑↑
We suggest referring to gastroenterologist patients with symptoms suggesting possible inflammatory bowel disease	↑
When systemic treatments are required for both conditions, **we recommend** using as first-line approved targeted therapies in the following conditions: Crohn's disease: TNFi (infliximab, adalimumab, certolizumab pegol), IL-12/23i (ustekinumab), IL-23i (preferred risankizumab, guselkumab) Ulcerative colitis: TNFi (infliximab, adalimumab) and IL-12/23i (ustekinumab), IL-23i (preferred risankizumab, guselkumab)	↑↑
We suggest that the following non-targeted systemic treatments may be considered as alternative treatment options in patients with psoriasis and inflammatory bowel disease Crohn's disease: Methotrexate Ulcerative colitis: Ciclosporin, apremilast	↑
We cannot make recommendations regarding the use of deucravacitinib	0
We suggest against the use of the TNFi fusion-protein etanercept in patients with inflammatory bowel disease.	↓
We recommend against the use of IL-17i in patients with inflammatory bowel disease.	↓↓

I. Recommendations for patients with multiple sclerosis	
We recommend working in collaboration with the treating neurologist when prescribing a systemic therapy in psoriasis patients with concomitant multiple sclerosis or other demyelinating disease	↑↑
For psoriasis patients with a first-degree relative with multiple sclerosis or other demyelinating disease, **we suggest against** the use of TNFi therapy if other suitable treatment options are available.	↓
We recommend against using TNFi therapy in psoriasis patients with a diagnosis of multiple sclerosis or other demyelinating disease.	↓↓

Treatment options for patients with comorbidities or those with special circumstances

Figure 2 provides a summary of the recommendations for patients with particular forms or locations of psoriasis, comorbidities, a recent history of or active cancer, associated illnesses, special situations or who are trying to conceive, pregnant or breastfeeding.

Concerning patients with generalized pustular psoriasis (GPP), we recommend using spesolimab to treat acute flare-ups of GPP. Spesolimab, TNFi and IL-17i are possible therapeutic options for maintenance treatment. For erythrodermic psoriasis, we recommend choosing IL-17i, IL-23i or infliximab as first-line treatment. For patients with palmoplantar pustular psoriasis (PPPP), we suggest IL-17i, IL-23i or ciclosporin as first-line treatment (Table 7A–D).

Recommendations for patients with comorbidities are detailed in Table 8A–I. For patients with psoriasis and a high or very high cardiovascular risk, we recommend methotrexate or TNFi as the preferred first-line treatment. For patients with psoriasis and advanced heart failure (NYHA III/IV stages), we suggest using methotrexate, IL-12/23i, IL-17i, IL-23i or apremilast. For psoriasis patients with chronic kidney disease (all stages of renal impairment), we suggest using biologics, deucravacitinib or apremilast or acitretin (careful dosing and/or dose adjustment may be needed for apremilast and acitretin). For psoriasis patients with cirrhosis or advanced liver fibrosis (F3–F4), we suggest the use of biologics or apremilast.

TABLE 9 Recommendations for patients with recent history of cancer or active cancer.

Recommendations for patients with history of cancer or active cancer (except non-melanoma skin cancer, basal cell carcinoma and squamous cell carcinoma)	
We recommend taking stage and prognosis of the cancer and the risk of cancer progression or recurrence into account for shared therapeutic decision making	↑↑
We recommend phototherapy NB-UVB*, acitretin or methotrexate as first-line systemic treatment for patients with recent malignancy < 5 years or active cancer	↑↑
We suggest considering the initiation of treatment with TNFi, ustekinumab, IL-17i†, IL-23i† or apremilast† in psoriasis patients with previous history of cancer <5 years or active cancer, on a case-by-case basis including discussion with the oncologists, the patients and/or in multidisciplinary concertation meetings	↑
We suggest considering the maintenance of TNFi, ustekinumab, IL-17i†, IL-23i† or apremilast† for psoriasis in case of cancer occurrence or relapse under treatment on a case-by-case basis including discussion with the oncologists, the patients and/or in multidisciplinary concertation meetings, taking into account the severity of psoriasis and the benefit-to-risk balance	↑
We recommend against the maintenance of ciclosporin in case of cancer occurrence or relapse under treatment.	↓↓
We recommend against the maintenance of deucravacitinib in case of cancer occurrence or relapse under treatment.	Expert opinion
We recommend against using ciclosporin in psoriasis patients with a previous history of cancer <5 years or active cancer.	↓↓

**Except patients with a recent and/or high risk of cutaneous malignancy. †Despite the lack of long-term data. NB-UVB, narrowband UVB.*

TABLE 10 (A–F) Recommendations for patients with associated illnesses or special situations.

A. Recommendations for patients with history of tuberculosis or at high-risk tuberculosis exposure	
We recommend screening psoriasis patients for latent tuberculosis and that positive patients be treated before initiating biological treatment or deucravacitinib.	↑↑
We recommend for pre-screening*, taking a thorough patient history including tuberculosis history, a chest X-ray or low dose CT scan and IGRA.	↑↑
If IGRA is not interpretable, **we recommend** repeating the test.	↑↑
We recommended referring patients with active tuberculosis to a pulmonologist and/or an infectiologist to make the decision to treat and be advised for the treatment choice.	↑↑
We recommend remaining alert to the possibility of tuberculosis infection (new or reactivation) during therapy and up to six months after discontinuation, especially with TNFi.	↑↑
We suggest treating latent tuberculosis infection with isoniazid and rifampicin, the initiation of which 3 weeks minimum before the start of the immunosuppressive therapy for 3 months (alternatives are also possible).	↑
We suggest the use of IL-17i or IL-23i as a treatment for psoriasis in patients with latent tuberculosis if latent tuberculosis treatment is contraindicated.	↑
We suggest rescreening for latent tuberculosis infection during TNFi treatment according to the patient's risk exposure† In cases requiring periodic tuberculosis screening, the use of TST or IGRA is only recommended for patients with no previous diagnosis of latent tuberculosis infection or tuberculosis disease. In those with previously treated tuberculosis or previously treated latent tuberculosis infection, screening should include an epidemiological anamnesis and clinical observation to identify any new contact with Mycobacterium tuberculosis and the emergence of clinical symptoms/signs of tuberculosis disease.	↑
We cannot make recommendations regarding the use of IL-12/23i in psoriasis patients at high risk of tuberculosis exposure or if latent tuberculosis treatment is contraindicated.	0
We suggest against the use of TNFi and deucravacitinib in psoriasis patients at high risk of tuberculosis exposure or if latent tuberculosis treatment is contraindicated.	↓

**An X-ray taken within the previous six months is acceptable if the past medical history is unremarkable. †People classified as underserved, e.g. people who are homeless, people who misuse substances, prisoners, vulnerable migrants, people frequently travel to countries where tuberculosis is common, including some countries in Asia, Africa, eastern Europe and Latin America (WHO), people identified as contacts according to the case-finding recommendations. IGRA, interferon-γ release assay; TST, tuberculin skin test.*

For patients with psoriasis and inflammatory bowel disease (IBD) who require systemic treatment for both conditions, we recommend approved targeted therapies for both conditions as a first-line treatment: TNFi, IL-12/23i and IL-23i. Non-targeted systemic treatments may be considered as alternative treatment options for patients with psoriasis and IBD: methotrexate for Crohn's disease and ciclosporin or apremilast for ulcerative colitis.

For patients with psoriasis and a recent history of malignancy or active cancer, we recommend phototherapy (NB-UVB), acitretin or methotrexate as first-line systemic treatment. Biologics or apremilast can be considered on a case-by-case basis, following discussion with oncologists, patients and/or at multidisciplinary consultation meetings (see Table 9.).

Based on the most recent data, the risk of developing active tuberculosis does not appear to be increased by the latest biologics,[25] IL-17i and IL-23i. Therefore, we suggest using IL-17i or IL-23i to treat psoriasis in patients with latent tuberculosis if treatment for latent tuberculosis is contraindicated. For well-controlled HIV patients, we suggest using the same algorithm as non-HIV patients in collaboration with HIV specialists (except for deucravacitinib). All the recommendations for psoriasis patients with associated illnesses or special situations are detailed in Table 10A–F.

Recommendations for patients with psoriasis who are trying to conceive, who are pregnant, or who are breastfeeding are presented in Table 11A–D. Based on extensive published data on children conceived by men taking methotrexate at the time of conception or within 3 months prior, methotrexate may be continued for men wishing to conceive. Precautions regarding the use of biologics or the latest treatments are due to a lack of data, not the occurrence of adverse effects. These precautions may be reviewed over time.

The psoriasis recommendations discussed above have been adapted for patients with PsA (not predominant), as

TABLE 10 (Continued)

B. Recommendations for patients with HIV infection	
We recommend testing for HIV (HIV-1 and HIV-2 antibodies and HIV-1 antigen) infection in all patients before starting a systemic treatment for psoriasis	↑↑
We recommend considering ongoing screening for HIV in people who are at increased risk of infection* (e.g. annually) or retest for HIV infection in any person who has symptoms, severe worsening of the psoriasis or other conditions that might represent HIV seroconversion/infection.	↑↑
We recommend working in collaboration with a relevant specialist when prescribing systemic therapy in any psoriasis patient with HIV infection	↑↑
We recommend optimising effective antiretroviral treatment in psoriasis patients with HIV infection and ensure HIV viral load is suppressed on antiretroviral therapy before considering immunosuppressive systemic therapy.	↑↑
We suggest treating well-controlled HIV patients with the same algorithm as non-HIV patients in collaboration with HIV specialists (except for deucravacitinib)	↑
We suggest discussing treatment options in a multidisciplinary team meeting for patient with uncontrolled HIV infection	↑
We cannot make recommendations regarding the use of deucravacitinib in cases of HIV infection.	0

** Men who have sex with men, with frequent partner change or practising 'chemsex', intravenous or intranasal drug users, commercial sex workers, recipients of recent tattoos or recent blood transfusions abroad.*

C. Recommendations for patients with viral hepatitis	
We recommend screening patients for hepatitis B and hepatitis C as a routine measure before starting systemic treatment for psoriasis.	↑↑
We recommend referring patients with positive HCV serology to a hepatologist or infectious disease specialist before initiating systemic treatment for psoriasis.	↑↑
We recommend working in collaboration with a hepatologist or infectious diseases specialist when prescribing systemic therapy in any psoriasis patient with hepatitis B or C (active or at risk of reactivation). All patients with positive HBs-Ag and/or positive HBV RNA should be screened by a hepatologist	↑↑
We recommend screening for HBV reactivation in anti-HBc-positive and HBs-Ag-negative patients under systemic treatment (except acitretin) • Additional monitoring of AST and ALT (at least every three months) Possible additional monitoring of HBS-Ag and HBV RNA, depending on hepatologist/liver specialist advice and treatment choice, and in all cases of elevated AST or ALT in those patients	↑↑
We suggest discussing the use of systemic treatment such as methotrexate, acitretin, apremilast and biologics for patients at risk of reactivation in collaboration with a hepatologist or infectious disease specialist	↑
We suggest using IL-12/23i, IL-17i, IL-23i as preferential biologic for patients at risk of HBV reactivation.	Expert opinion
We cannot make recommendation about the use of deucravacitinib for patients at risk of reactivation	0
We recommend against systematic screening for hepatitis A, hepatitis D and hepatitis E before starting a treatment for psoriasis	↓↓

ALT, alanine transaminase; anti-HBc, hepatitis B core-specific antibody; AST, aspartate transaminase; HBs-Ag, hepatitis B surface antigen; HVB, hepatitis B virus; HCV, hepatitis C virus.

TABLE 10 (Continued)

D. Recommendations for patients with solid organ transplant	
We recommend working in collaboration with the organ transplant team when prescribing systemic therapy in any psoriasis patient with organ transplant recipient	↑↑
We suggest using systemic treatments with the lowest risk of infection and/or short half-lives after multidisciplinary team concertation, such as acitretin, etanercept, ustekinumab, IL-17i or IL-23i	Expert opinion
We suggest against using methotrexate in the case of liver transplant patients	Expert opinion
We suggest against apremilast in cases of concomitant use of treatment with strong CYP3A4 inducers.	↓

E. Management of patients needing surgery in perioperative periods	
We recommend working in collaboration with the surgeon and/or anaesthetist concerning intermediate- and high-risk surgery.	↑↑
We suggest that treatment discontinuation should be based on individual factors: type of surgical procedure, patient characteristics, individual infection risk factors and comorbidities.	↑
We recommend no discontinuation in the perioperative period for acitretin for any surgery.	↑↑
We suggest no discontinuation of biologics, methotrexate, apremilast and ciclosporin before low-risk surgery.	↑
We suggest no discontinuation of methotrexate, ciclosporin, apremilast, IL-17i, IL-23i, and ustekinumab before intermediate and high-risk surgery*. ** cautious case-by-case approach may be advisable*	↑
We suggest with holding TNFi for one full dosing interval before total knee or total hip arthroplasties.	↑
We cannot make recommendations regarding the use of deucravacitinib in the perioperative period.	0

F. Recommendations for vaccinations in people with psoriasis who are planning or receiving systemic immune-modifying treatment	
We recommend following the standard vaccination recommendations/national schedule for patients with psoriasis.	↑↑
We recommend influenza vaccine and pneumococcal vaccine for patients treated with systemic treatment (except acitretin and apremilast) and review vaccination requirements during therapy.	↑↑
We suggest a 2-week interruption of methotrexate following non-live vaccination where possible since it may improve vaccine immunogenicity	↑
We suggest for adults treated with ciclosporin, methotrexate, biologics or deucravacitinib receiving a live vaccine: • Defer the next ciclosporin dose until 2–4 weeks after vaccination • Consider discontinuing methotrexate for 2–4 weeks prior to vaccination and defer next methotrexate dose until 2–4 weeks after vaccination • Consider discontinuing biologics or deucravacitinib for 2–3 half-lives prior to vaccination and defer next dose until 2–4 weeks after vaccination	↑
We recommend that adults receive the shingles vaccination when treatment with deucravacitinib or ciclosporin is considered.	↑↑

seen from the dermatologist's point of view. They are detailed in Table 12 and summarized in Figure 3.

Details of the data used for all the recommendations (Tables 7–12) is available in the see Appendices S7 and S8.

TABLE 11 (A–D) Recommendations for patients who are trying to conceive, pregnancy, breastfeeding or paternal recommendations.

A. Recommendations for patients with psoriasis during short-term periods of trying to conceive	
We recommend using certolizumab pegol or NB-UVB as the first-line choice when starting systemic therapy	↑↑
We recommend stopping these treatments before conception (recommended washout period): methotrexate (24 hours*), PUVA (one month**), deucravacitinib (3 days), apremilast (3 days)	↑↑
We suggest the possibility of using ciclosporin, etanercept, adalimumab, infliximab, ustekinumab or secukinumab	↑
We suggest considering a switch to certolizumab pegol† in patients treated with ixekizumab, brodalumab, bimekizumab, guselkumab, risankizumab, tildrakizumab	↑
We suggest considering the following washout periods before conception: ixekizumab (10 weeks), brodalumab (8 weeks), bimekizumab (17 weeks), guselkumab (12 weeks), risankizumab (21 weeks), tildrakizumab (17 weeks)	↑
We recommend against the use of acitretin for women of childbearing age	↓↓

**Remain cautious if risk of prolonged half-life.†Ciclosporin, etanercept, adalimumab, infliximab, ustekinumab or secukinumab may be also considered. NB-UVB, narrowband UVB; PUVA, psoralen + UVA.*
*** Updated after CRAT response in October 2025*

B. Recommendations for patients with psoriasis during pregnancy	
We recommend close collaboration with an obstetrician-gynaecologist and paediatrician if a systemic therapy is continued.	↑↑
We recommend that data on maternal drug exposure and pregnancy outcomes are collected in national safety registries, where available.	↑↑
We recommend using certolizumab pegol or NB-UVB as the first choice if systemic treatment is needed.	↑↑
We suggest the use of ciclosporin, etanercept, infliximab, adalimumab, ustekinumab, secukinumab as alternatives to certolizumab pegol.	↑
We suggest stopping use of biologics in the third trimester of pregnancy (except certolizumab pegol and etanercept) when possible, to minimise foetal exposure and limit the potential risk of infection to the neonate.	↑
We suggest against administration of live attenuated vaccines to infants (up to 6 months of age) whose mothers have received biologics after 16 weeks of gestation, unless the benefit of vaccination clearly outweighs the theoretical risk of administration*.	↓
We recommend against the use of acitretin, methotrexate, PUVA, apremilast and deucravacitinib during pregnancy.	↓↓

**If a live vaccine is required before 6 months of age, this could be considered on a case-by-case basis, depending on the date of the mother's last injection and the half-life of the biologic. NB-UVB, narrowband UVB; PUVA, psoralen + UVA.*

TABLE 11 (Continued)

C. Recommendations for patients with psoriasis during breastfeeding	
We recommend using NB-UVB, ciclosporin, certolizumab pegol, etanercept, infliximab, adalimumab, ustekinumab during breastfeeding.	↑↑
We cannot make recommendations about the use of guselkumab, tildrakizumab, risankizumab, secukinumab, ixekizumab, brodalumab, bimekizumab owing to insufficient clinical data	0
We suggest against using methotrexate* during breastfeeding.	↓
We recommend against using acitretin, apremilast and deucravacitinib during breastfeeding.	↓↓

**Possible to use methotrexate only if breastfeeding can be delayed for 24 hours after methotrexate administration, but this is difficult to achieve in practice. NB-UVB, narrowband UVB.*

D. Recommendations of psoriasis therapeutics for paternal use	
We recommend that data on paternal apremilast and deucravacitinib exposure and pregnancy outcomes are collected in national safety registries, where available	↑↑
We suggest continuing ciclosporin, acitretin, methotrexate and biologics in men trying to conceive	↑
We cannot make recommendations about the use of apremilast and deucravacitinib in men who are trying to conceive	0

TABLE 12 Recommendations for patients with psoriasis associated with psoriatic arthritis.

Recommendations for patients with psoriasis associated with PsA	
We recommend interdisciplinary cooperation with a rheumatologist for the confirmation of the diagnosis of psoriatic arthritis and the selection of a suitable treatment whenever needed.	↑↑
We suggest that management should be based on the patient's predominant phenotype using the following classification: polyarthritis (> 4 joints), mono/oligoarthritis, dactylitis, enthesitis, and axial disease.	↑
We suggest using NSAIDs as possible adjunctive treatment in any lines of treatment in case of concomitant psoriatic arthritis.	↑
We suggest using methotrexate as well as adalimumab, or ustekinumab biosimilars as first-line treatments for non-axial psoriatic arthritis in patients with moderate to severe psoriasis needing a systemic treatment.	↑
We suggest using adalimumab as first-line treatments for axial psoriatic arthritis in patients with moderate to severe psoriasis needing a systemic treatment.	↑
We suggest using biologics in patients with non-axial psoriatic arthritis in case of first-line failure over 12–16 weeks.	↑
We suggest using only TNFi, IL-17i in patients with axial psoriatic arthritis predominant phenotype in cases of first-line failure over 12–16 weeks.	↑
We suggest using JAK inhibitors (PDE4 inhibitors are also possible) after contraindication, intolerance or failure of biologics in psoriasis arthritis	↑
We suggest against systematic methotrexate co-administration with biologics since it is not supported by robust evidence.	↓

JAK, Janus kinase; NSAID, non-steroidal anti-inflammatory drugs; PDE4, phosphodiesterase 4.

DISCUSSION

Limitations of the guidelines

The questions regarding the criteria with which to initiate systemic treatment, the treatment goals and the evaluation of the treatment response were not re-evaluated in this update. The guidelines concerning these topics in the previous version remain accurate.

Several questions could not be addressed in the present recommendations due to a lack of evidence-based data. Notably, we were unable to provide satisfactory answers to the following questions:

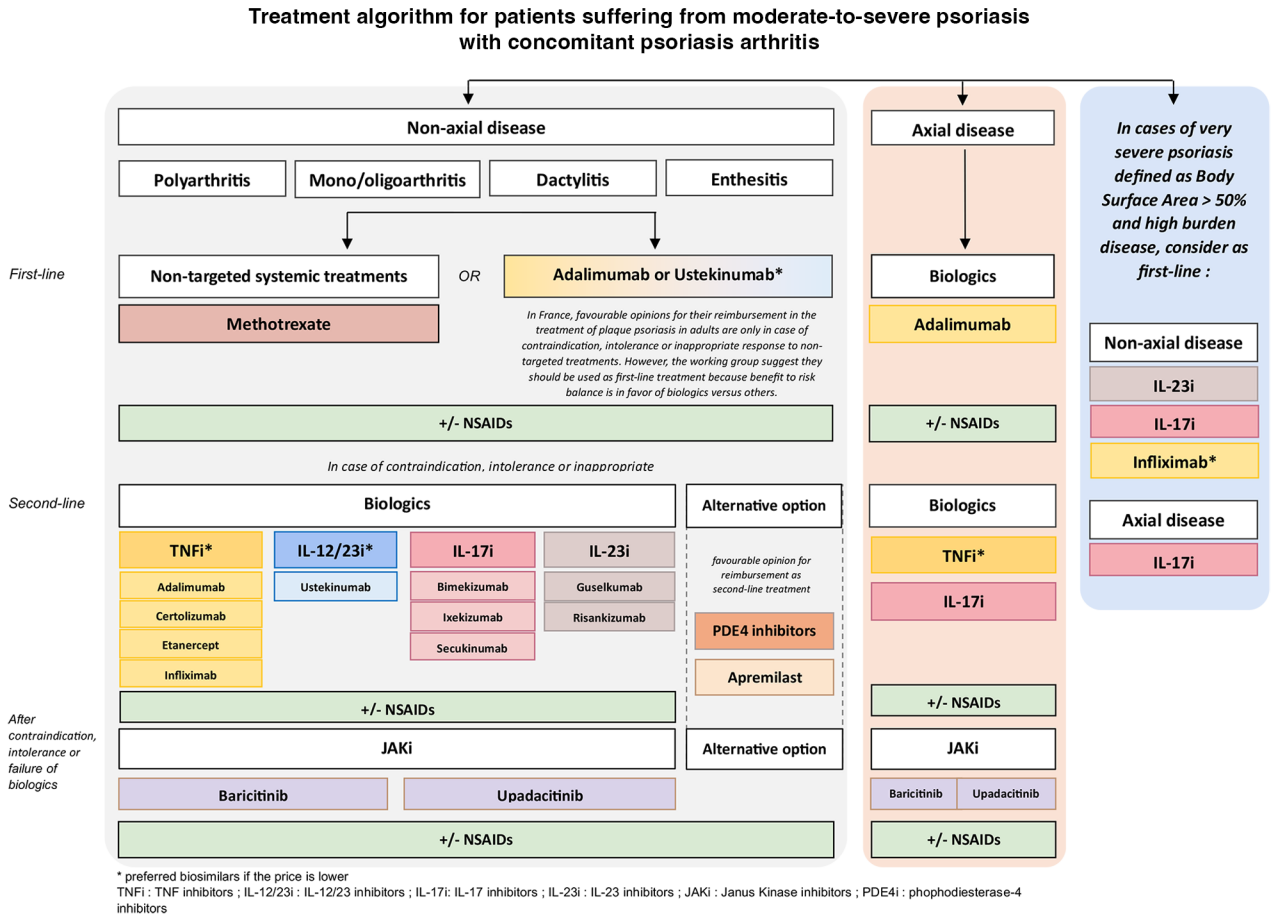


FIGURE 3 Treatment algorithm for patients suffering from moderate-to-severe psoriasis with concomitant psoriatic arthritis.

- What is the best place of deucravacitinib in the therapeutic algorithm? The working group suggested keeping the recommendations for use in line with the current reimbursement conditions (after contraindication, intolerance or failure of a biologic), but its place in the treatment strategy may change in the coming years thanks to cumulative safety data.
- How should deucravacitinib be used in specific conditions, such as the location of psoriasis or comorbidities?
- Are there reasonable grounds for advocating the early initiation of treatment for psoriasis?
- Are routine tests to detect latent tuberculosis infection necessary before or during treatment of patients with psoriasis using IL-17i or IL-23i?
- What are the treatment possibilities for patients undergoing haemodialysis?
- What is the treatment strategy to adopt in cases of paradoxical psoriasis induced by anti-TNF agents?
- Which treatment strategy should be used for a patient with hidradenitis suppurativa associated with psoriasis?

Further studies are necessary to provide clear answers to these questions.

Planned update of the French psoriasis guidelines

An update of the present guidelines will be necessary by 2030.

AUTHOR CONTRIBUTIONS

MMR, HA, EB and EC designed the methodology of the guidelines and supervised the project. MMR and HA have assessed and selected existing recommendations on psoriasis in the MEDLINE database using the Appraisal of Guidelines for REsearch & Evaluation II (AGREE) scale for guidelines. MMR, HA, EB, LPV, LP, JG, MR, CL, TR, FE, DHP, MEM, CB, CM, AM, CB, JC, SM, OP, LC, LG, MC, SS, GR, RO performed, for some treatments and/or specific situations which were attributed to them, the summary of existing recommendations and then a systematic review of existing meta-analyses (if no data were available, systematic reviews were carried out of randomized controlled trials or large-scale prospective or retrospective studies) using MEDLINE and the Cochrane Library databases. After analysing the methods, objectives, results and biases of included studies, they established recommendations using phrasing

suggested by the GRADE Working Group to standardize the wording of all recommendations. MMR and HA created the online recommendation evaluation questionnaire for external reviewers and analysed the data of each round of external reviewing. MMR, HA, EB and EC contributed to the writing of the first version of the manuscript. All authors discussed the results and contributed to the final manuscript.

ACKNOWLEDGEMENTS

We thank Denis Jullien, Celine Girard, Nathalie Beneton, Irène Galais Sérézal, Carle Paul, Marie-Aleth Richard and Manuelle Viguier, experts in the field of psoriasis and members of the scientific board of the Psoriasis Research Group of the French Society of Dermatology, who reviewed the first version of the guidelines. We acknowledge Benoit Marin (CRAT) for his help in analysing the pregnancy data. We acknowledge Jean Michel Amici, Florent Amatore, Florence Assan, Claire Bernier, Marie Beylot-Barry, Anne-Claire Bursztejn, Charles Cassius, Guillaume Chaby, Bénédicte Charles, Anne-Caroline Cottencin, Juliette Delaunay, Marie-Sylvie Doutre, Anne Bénédicte Duval Modeste, Anne-Claire Fougerousse, Clémence Guérin, Nicole Jouan, Ingrid Kupfer, Cristina Livideanu, Philippe Modiano, Laurent Misery, Carole Poiraud, Nathalie Quiles, Delphine Staumont-Sallé, Sophie Vildy, dermatologists mandated by the French Society of Dermatology who reviewed the second version of the guidelines. We thank Thomas Lafon (general practitioner), Aurelien Amiot and Guillaume Bouguen (gastroenterologists), Pascal Claudepierre (rheumatologist) who reviewed the second version of the guidelines. We thank members from France Psoriasis Foundation who reviewed the second version of the guidelines. The manuscript has been revised for the English by an independent scientific language editing service. We thank Gemma Ryan (Angloscribe) who reviewed the final version of the guidelines.

FUNDING INFORMATION

The work was supported by the Psoriasis Research Group of the French Society of Dermatology (Groupe de Recherche sur le Psoriasis de la Société Française de Dermatologie).

CONFLICT OF INTEREST STATEMENT

ES, LP, MR, CL, TR, FE, DHP, CB, CM, AM, CB, JC, SM, OP, LC, MC, SS, RO declare no conflicts of interest regarding the publication of these recommendations. During the past 3 years: MMR has been a speaker, has participated as a board member or has been invited to attend conferences by Leo Pharma, AbbVie, Janssen, Sanofi, AbbVie, Janssen, Lilly, Leo, Sanofi and BMS. HA has been a speaker, has participated as a board member or has been invited to attend conferences by AbbVie, Leo Pharma, Lilly France, UCB Pharma, Almirall SAS, Janssen Cilag, Novartis Pharma SAS. EB has been a speaker, has participated as a board member or has been invited to attend conferences by AbbVie, Almirall SAS, Lilly, Novartis, UCB, Janssen Cilag, Leo Pharma, Boehringer Ingelheim, Pfizer, Amgen. GL has been invited to attend conferences by Sandos, Sanofi, Novartis Pharma SAS, Amgen, GSK, Galapagos and AbbVie. LG has been invited to attend conferences by Lilly, Janssen, BMS and AbbVie. MEM has been invited to attend conferences by Galderma and AbbVie. JG has been a speaker, has participated as a board member or has been invited to attend conferences by AbbVie, Almirall SAS, Amgen, BMS, Janssen Cilag, Leo Pharma, Lilly France, Novartis Pharma SAS, UCB Pharma. LPV has been invited to attend conferences by Novartis and Celltrion.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

ETHICAL APPROVAL

As this work did not involve experimentation on humans, ethics permission was neither necessary nor sought.

ETHICS STATEMENT

Not applicable.

ORCID

Marie Masson Regnault https://orcid.org/0000-0002-2625-0628
Marie-Emeline Marniquet https://orcid.org/0000-0001-8932-392X
Raphaël Ouakrat https://orcid.org/0009-0007-6954-7150
Clara Labonne https://orcid.org/0000-0002-3475-0892
Tania Randriamiarana https://orcid.org/0009-0008-4168-357X
Marine Chastagner https://orcid.org/0000-0002-5276-8025
Emilie Sbidian https://orcid.org/0000-0002-1267-5270
Hélène Aubert https://orcid.org/0000-0003-1688-9900

REFERENCES

1. Available from: https://www.has-sante.fr/jcms/c_431294/en/clinical-practice-guidelines-cpg.
2. Darzi A, Abou-Jaoude EA, Agarwal A, Lakis C, Wiercioch W, Santesso N, et al. A methodological survey identified eight proposed frameworks for the adaptation of health related guidelines. J Clin Epidemiol. 2017;86:3–10.
3. Gossec L, Kerschbaumer A, Ferreira RJO, Aletaha D, Baraliakos X, Bertheussen H, et al. EULAR recommendations for the management of psoriatic arthritis with pharmacological therapies: 2023 update. Ann Rheum Dis. 2024;83(6):706–19.
4. Brouwers MC, Kho ME, Browman GP, Burgers JS, Cluzeau F, Feder G, et al. AGREE II: advancing guideline development, reporting and evaluation in health care. Can Med Assoc J. 2010;182(18):E839–E842.
5. Shea BJ, Reeves BC, Wells G, Thuku M, Hamel C, Moran J, et al. AMSTAR 2: a critical appraisal tool for systematic reviews that include randomised or non-randomised studies of healthcare interventions, or both. BMJ. 2017;358:j4008.
6. Gossec L, Baraliakos X, Kerschbaumer A, de Wit M, McInnes I, Dougados M, et al. EULAR recommendations for the management of psoriatic arthritis with pharmacological therapies: 2019 update. Ann Rheum Dis. 2020;79(6):700–12.
7. Amatore F, Villani AP, Tauber M, Viguier M, Guillot B, Psoriasis Research Group of the French Society of Dermatology (Groupe de Recherche sur le Psoriasis de la Société Française de Dermatologie). French guidelines on the use of systemic treatments for moderate-to-severe psoriasis in adults. J Eur Acad Dermatol Venereol. 2019;33(3):464–83.

8. Nast A, Amelunxen L, Augustin M, Boehncke WH, Dressler C, Gaskins M, et al. S3 Guideline for the treatment of psoriasis vulgaris, update – Short version part 2 – Special patient populations and treatment situations. J Dtsch Dermatol Ges. 2018;16(6):806–13.
9. Smith CH, Yiu ZZN, Bale T, Burden AD, Coates LC, Edwards W, et al. British Association of Dermatologists guidelines for biologic therapy for psoriasis 2020: a rapid update. Br J Dermatol. 2020;183(4):628–37.
10. Smith CH, Jabbar-Lopez ZK, Yiu ZZ, Bale T, Burden AD, Coates LC, et al. British Association of Dermatologists guidelines for biologic therapy for psoriasis 2017. Br J Dermatol. 2017;177(3):628–36.
11. Elmets CA, Lim HW, Stoff B, Connor C, Cordoro KM, Lebwohl M, et al. Joint American Academy of Dermatology-National Psoriasis Foundation guidelines of care for the management and treatment of psoriasis with phototherapy. J Am Acad Dermatol. 2019;81(3):775–804.
12. Elmets CA, Leonardi CL, Davis DMR, Gelfand JM, Lichten J, Mehta NN, et al. Joint AAD-NPF guidelines of care for the management and treatment of psoriasis with awareness and attention to comorbidities. J Am Acad Dermatol. 2019;80(4):1073–113.
13. Menter A, Strober BE, Kaplan DH, Kivelevitch D, Prater EF, Stoff B, et al. Joint AAD-NPF guidelines of care for the management and treatment of psoriasis with biologics. J Am Acad Dermatol. 2019;80(4):1029–72.
14. Menter A, Gelfand JM, Connor C, Armstrong AW, Cordoro KM, Davis DMR, et al. Joint American Academy of Dermatology-National Psoriasis Foundation guidelines of care for the management of psoriasis with systemic nonbiologic therapies. J Am Acad Dermatol. 2020;82(6):1445–86.
15. Smolen JS, Schöls M, Braun J, Dougados M, FitzGerald O, Gladman DD, et al. Treating axial spondyloarthritis and peripheral spondyloarthritis, especially psoriatic arthritis, to target: 2017 update of recommendations by an international task force. Ann Rheum Dis. 2018;77(1):3–17.
16. Singh JA, Guyatt G, Ogdie A, Gladman DD, Deal C, Deodhar A, et al. Special Article: 2018 American College of Rheumatology/National Psoriasis Foundation Guideline for the Treatment of Psoriatic Arthritis. Arthritis Care Res. 2019;71(1):2–29.
17. Holroyd CR, Seth R, Bukhari M, Malaviya A, Holmes C, Curtis E, et al. The British Society for Rheumatology biologic DMARD safety guidelines in inflammatory arthritis. Rheumatology. 2019;58(2):e3–e42.
18. Tsai TF, Hsieh TY, Chi CC, Chou CT, Hsieh LF, Chen HH, et al. Recommendations for psoriatic arthritis management: A joint position paper of the Taiwan Rheumatology Association and the Taiwanese Association for Psoriasis and Skin Immunology. J Formos Med Assoc. 2021;120(3):926–38.
19. Elmamoun M, Eraso M, Anderson M, Maharaj A, Coates L, Chandran V, et al. International league of associations for rheumatology recommendations for the management of psoriatic arthritis in resource-poor settings. Clin Rheumatol. 2020;39(6):1839–50.
20. Tucker L, Allen A, Chandler D, Ciurtin C, Dick A, Foulkes A, et al. The 2022 British Society for Rheumatology guideline for the treatment of psoriatic arthritis with biologic and targeted synthetic DMARDs. Rheumatology. 2022;61(9):e255–e266.
21. Coates LC, Soriano ER, Corp N, Bertheussen H, Callis Duffin K, Campanholo CB, et al. Group for Research and Assessment of Psoriasis and Psoriatic Arthritis (GRAPPA): updated treatment recommendations for psoriatic arthritis 2021. Nat Rev Rheumatol. 2022;18(8):465–79.
22. Guyatt G, Oxman AD, Akl EA, Kunz R, Vist G, Brozek J, et al. GRADE guidelines: 1. Introduction-GRADE evidence profiles and summary of findings tables. J Clin Epidemiol. 2011;64(4):383–94.
23. Sbidian E, Chaimani A, Guelimi R, Garcia-Doval I, Hua C, Hughes C, et al. Systemic pharmacological treatments for chronic plaque psoriasis: a network meta-analysis. Cochrane Database Syst Rev. 2023;7(7):CD011535.
24. Marcombes C, Penso L, Sbidian E. First-Line Persistence of Biologics in Psoriasis from a Cohort Based on French Medico-Administrative Data. J Invest Dermatol. 2023;143(9):1819–1822.e3.
25. Torres T, Brembilla NC, Langley RG, Warren RB, Thaçi D, Kolios AGA, et al. Treatment of psoriasis with biologic and non-biologic targeted therapies in patients with latent tuberculosis infection or at risk for tuberculosis disease progression: Recommendations from a SPIN-FRT expert consensus. J Eur Acad Dermatol Venereol. 2025;39(1):52–69.

SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

How to cite this article: Masson Regnault M, Brenaut E, Marniquet M-E, Berthault C, Canoen L, Marcombes C, et al. French guidelines on systemic treatments for moderate-to-severe psoriasis in adults: Update 2025. J Eur Acad Dermatol Venereol. 2026;40:963–979. https://doi.org/10.1111/jdv.70263