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2 **Original Article**

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4 **National Psoriasis Foundation COVID-19 Task Force Guidance for Management of Psoriatic Disease**
5 **During the Pandemic: Version 1**

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This is the author's manuscript of the article published in final edited form as:

Gelfand, J. M., Armstrong, A. W., Bell, S., Anesi, G. L., Blauvelt, A., Calabrese, C., Dommasch, E. D., Feldman, S. R., Gladman, D., Kircik, L., Lebwohl, M., Lo, R. V., Martin, G., Merola, J. F., Scher, J. U., Schwartzman, S., Treat, J. R., Van Voorhees, A. S., Ellebrecht, C. T., ... Ritchlin, C. T. (2020). National Psoriasis Foundation COVID-19 Task Force Guidance for Management of Psoriatic Disease During the Pandemic: Version 1. *Journal of the American Academy of Dermatology*. <https://doi.org/10.1016/j.jaad.2020.09.001>

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46
47 **Funding sources:** None

48
49 **Conflicts of interest:**

50
51 Dr Anesi has pending fees from UpToDate for authoring COVID-19 clinical reference material. Research time
52 is supported by AHRQ K12HS026372.

53
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59 Incyte, Janssen, Leo, Novartis, Pfizer, Rapt, Regeneron, Sanofi Genzyme, Sun Pharma, and UCB Pharma,
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67 Alvotech, Leo Pharma, BMS, Boehringer Ingelheim, Mylan, Celgene, Pfizer, Ortho Dermatology, Abbvie,
68 Samsung, Janssen, Lilly, Menlo, Merck, Novartis, Regeneron, Sanofi, Novan, Qurient, National Biological
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89 Coherus, Dermavant, Dermira, Eli Lilly, Leo, MC2, Maruho, Novartis, Ortho Dermatologics, Pfizer, Dr Reddy's,
90 Sun Pharma, UCB, Taro, Xenoport

91

92 Dr Lebowitz is an employee of Mount Sinai and receives research funds from: Abbvie, Amgen, Arcutis,
93 Boehringer Ingelheim, Dermavant, Eli Lilly, Incyte, Janssen Research & Development, LLC, Leo
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106 Janssen, UCB, Sun Pharma, Pfizer, EMD Sorono

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108 Dr Ritchlin reports personal fees from AbbVie, Amgen, Janssen, Novartis, UCB, Boehringer Ingelheim, as well
109 as grants from Amgen, UCB and Abbvie outside the submitted work

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117 Dr Syed is supported by a grant from Pfizer

118

119 Dr. Van Voorhees has been an investigator for Celgene, Lilly and AbbVie. She has been an advisor/consultant
120 for the following companies: AbbVie, Allergan, Astra Zeneca, Celgene, Dermira, Merck, Novartis, Pfizer,
121 UCB, Valeant

122

123

124 Drs. Weinstein, Ellebrecht, Ocon, Fenner, Treat, Dommasch, and Lo Re, have no conflicts of interest to
125 disclose

126

127

128 **Manuscript word count (max 2500): 2495**

129 **Abstract word count (max 200) : 198**

130 **Capsule summary word count (max 50) : 48**

131 **References:** 142

132 **Tables:** 2

133 Supplementary tables: 9

134 Supplementary material: 1

135 **Keywords:** Psoriasis, Psoriatic arthritis, COVID-19, SARS-CoV-2, Biologics

136

137 **Abstract:**

138
139 **Objective:** To provide guidance about management of psoriatic disease during the COVID-19
140 pandemic.

141
142 **Study Design:** A task force (TF) of 18 physician voting members with expertise in dermatology,
143 rheumatology, epidemiology, infectious diseases, and critical care was convened. The TF was
144 supplemented by non-voting members which included fellows and National Psoriasis Foundation
145 (NPF) staff. Clinical questions relevant to the psoriatic disease community were informed by
146 questions received by the NPF. A Delphi process was conducted.

147
148 **Results:** The TF approved 22 guidance statements. The average of the votes was within the category
149 of agreement for all statements. All guidance statements proposed were recommended, 9 with high
150 consensus, 13 with moderate consensus.

151
152 **Limitations:** The evidence behind many guidance statements is limited in quality.

153
154 **Conclusion:** These statements provide guidance for the management of patients with psoriatic
155 disease on topics ranging from how the disease and its treatments impact COVID-19 risk and
156 outcome, how medical care can be optimized during the pandemic, what patients should do to lower

157 their risk of getting infected with SARS-CoV-2 and what they should do if they develop COVID-19.

158 The guidance is intended to be a living document that will be updated by the TF as data emerge.

159

160

161 **Capsule Summary:**

162

- 163 • The NPF COVID-19 Task Force produced 22 guidance statements to promote optimal
164 management of psoriatic disease during the pandemic.
- 165 • Shared decision making is recommended as is adherence to evidence-based
166 recommendations when available. The guidance statements will be updated when necessary
167 in accordance with rapidly evolving science of COVID-19.

168 INTRODUCTION

169
170 Severe Acute Respiratory Coronavirus 2 (SARS-CoV-2), a single stranded RNA virus that binds to
171 the ACE-2 receptor and causes illness called COVID-19, has precipitated devastating personal,
172 economic and societal repercussions worldwide.¹⁻⁴ SARS-CoV-2 usually causes a mild, self-limited
173 illness, but about 15% of affected individuals have a more severe, sometimes life-threatening course,
174 with the risk of poor outcomes increasing with age and comorbidities.⁵⁻⁷ Diffuse alveolar damage and
175 acute respiratory distress syndrome are the most common presentations in severe COVID-19.
176 Additionally, thrombo-embolic events along with direct and indirect viral-induced injury may target the
177 skin, gastrointestinal tract, kidney, heart and brain with devastating consequences.⁸⁻¹⁰

178
179 The type 1 interferon response, required to clear the virus, is often insufficient in the early phase of
180 SARS-CoV-2 infection but a delayed persistent elevation may develop as the illness progresses.¹¹
181 Profound dysregulation of innate and acquired immunity can occur with more severe COVID-19,
182 including significant lymphopenia as a direct result of viral-induced apoptosis and necrosis of
183 lymphocytes in the spleen and lymph nodes.¹² The persistent interferon response can result in
184 systemic hyperinflammation (a.k.a., cytokine storm).^{13, 14} Several of the cytokines elevated in severe
185 COVID-19 patients (TNF, IL-6, and IL-17) are also elevated in patients with psoriatic disease.¹⁵⁻¹⁷

186
187 The current model of COVID-19 is that immune suppression in early infection may be harmful by
188 allowing uncontrolled SARS-CoV-2 replication and dissemination, but may be helpful in severe illness
189 by limiting organ damage from a dysregulated hyperimmune response¹⁸. Many treatments used for

190 psoriatic disease directly or indirectly impact immune pathways involved in COVID-19.¹⁹⁻²² Patients
191 and providers are concerned about the safety of immunomodulating agents in the setting of the
192 COVID-19 pandemic. These concerns are particularly relevant given that many of the comorbidities
193 associated with psoriasis and psoriatic arthritis (PsA), including obesity, diabetes and cardiovascular
194 disease, are risk factors for the development of severe COVID-19.^{23, 24} To address the questions
195 posed by patients and providers, the National Psoriasis Foundation (NPF) commissioned a COVID-
196 19 task force (TF) to develop scientifically-based guidance that promotes optimal management of
197 psoriatic disease during the pandemic.

198

199 **METHODS**

200 See online supplement for detailed methods.

202 **Establishment of Task Force**

203 The COVID-19 TF includes 18 physicians with a variety of expertise relevant to decision-making in
204 the pandemic from different geographical areas within the United States and Canada, many of whom
205 have frontline experience managing a surge of COVID-19 patients (E Table 1). The TF was
206 supplemented by non-voting members which include 4 trainees in dermatology, rheumatology, and
207 infectious diseases, 1 post-doctoral fellow in epidemiology, as well as senior staff from the NPF.

209 **Evidence Synthesis**

210 The TF co-chairs completed weekly literature searches for COVID-19 in relation to psoriatic disease.
211 TF members also recommended papers of broad importance to COVID-19 related to its basic
212 biology, epidemiology, and treatment. Additional sources of data were obtained from the CDC, WHO,
213 FDA, and NIH.

215 **Development of Clinical Questions**

216 The TF met every 2 weeks to discuss the developments in the literature and clinical experience.
217 Clinical questions relevant to the psoriatic disease community were iterated and informed by
218 questions received by the NPF from the broader patient and clinical community. The questions were
219 subdivided into 5 categories and work groups with balanced expertise were formed. Each work group

220 of the TF convened to draft responses to the clinical questions based on the available evidence.

221 These responses were reviewed and drafted into guidance statements.

223 **Modified Delphi Process**

224 The guidance statements were presented to the 18 TF members using a modified Delphi process
225 including 2 rounds of voting with discussion in between. The Delphi approach was based on the
226 RAND appropriateness method, which has been extensively validated.²⁵⁻³¹

227
228 TF members were asked to report their level of agreement anonymously with each guidance
229 statement on a scale of 1-9. A rating of 1 corresponded to “complete disagreement,” 5 corresponded
230 to “uncertain or neutral,” and 9 corresponded to “complete agreement.” The members were able to
231 provide anonymous written comments. Median vote ratings of 1–3, 4–6, and 7–9 were defined *a*
232 *priori* as disagreement, uncertainty/neutral, and agreement, respectively. Panel consensus was
233 determined to be “low” when ≥ 5 votes fell into the 1–3 rating range with ≥ 5 votes concurrently falling
234 into the 7–9 rating range. Consensus was interpreted as “high” if all 18 votes fell within a single tertile,
235 with all other combinations considered as “moderate” levels of consensus. The results were analyzed
236 by the NPF with an independent analysis of the data by a non-voting member of the TF, which
237 yielded identical results.

242

243 **RESULTS:**

244

245 The TF Delphi was completed over a 2 week period (E Table 2). Five categories of questions were
246 explored (E Table 3) with 100% complete voting on 22 guidance statements (Table 4 & E-Table 4).
247 The median was within the category of agreement for all statements, with the number of votes outside
248 the range of agreement being only 1 or 2 for statements where agreement was not unanimous. All
249 guidance statements were recommended, 9 with high consensus, and the remainder with moderate
250 consensus.

251

252 **Category 1:** What are the effects of psoriatic disease itself on SARS-CoV-2 infection and COVID-19
253 illness?

254

255 Patients with psoriatic disease appear to have similar rates of infection with SARS-CoV-2 and
256 COVID-19 outcomes³²⁻³⁶ as the general population (Guidance 1.1). However, uncertainty remains
257 regarding this question. First, a few reports suggest that psoriasis patients may be more prone to
258 infection with COVID-19 or have worse outcomes.³⁷⁻³⁹ For example, a United Kingdom study with
259 over 17 million patients found a small but statistically increased risk of death from COVID-19 (fully
260 adjusted Hazards Ratio (HR) 1.19 [95% CI 1.11-1.27]) in individuals with either psoriasis, rheumatoid
261 arthritis or lupus.³⁸ It is unknown from this study the degree to which the observed finding is driven by
262 psoriasis, its severity, or treatment. Additionally, patients with psoriatic disease may be prone to

263 thrombotic complications that can also occur in COVID-19.⁴⁰⁻⁵⁴ There was unanimous agreement that
264 severity of COVID-19 is driven by risk factors such as older age and comorbidities (Guidance 1.2).^{32,}
265 ^{35, 36, 38, 55-58} Psoriatic disease—particularly severe psoriasis— is associated with many of the
266 comorbidities that drive COVID-19 mortality.^{44, 48, 59}

267
268 **Category 2:** What are the effects of psoriasis or psoriatic arthritis treatment on SARS-CoV-2 infection
269 and COVID-19 illness?

270
271 The existing literature suggests that treatments for psoriasis and/or PsA do not meaningfully alter the
272 risk of acquiring SARS-CoV-2 infection or having worse COVID-19 outcomes (Guidance 2.1)^{36, 60-86}.
273 Cyclosporine, the most broadly immunosuppressive of psoriasis treatments, was not found to alter
274 risk of COVID-19 in 130 patients in Italy with psoriasis or atopic dermatitis (2 became infected with
275 SARS-CoV-2 and recovered without hospitalization).⁷⁰ This study lacked a comparison group and is
276 too small to reach definitive conclusions. One study suggested that psoriasis patients on biologics
277 were more likely to be hospitalized for COVID-19 but did not adjust for risk factors known to drive
278 poor COVID19 outcomes.⁸⁷

279
280 The rheumatology literature also suggests that treatments used for psoriatic disease (such as TNF
281 inhibitors and methotrexate) do not negatively impact COVID-19⁸⁸⁻⁹¹ with one large registry (600 case
282 reports from 40 countries) finding that TNF inhibitors are associated with a reduced adjusted odds of
283 COVID-19 hospitalization compared to patients with rheumatic conditions not treated with TNF
284 inhibitors.⁹¹ Similarly, adverse effects of TNF inhibitors on COVID-19 were not observed in large

285 registries of IBD patients.^{92, 93} Small case series have reported poor COVID-19 outcomes in patients
286 on JAK inhibitors for PsA⁹⁴ and secukinumab for ankylosing spondylitis;⁹⁰ however, these isolated
287 reports could be due to selection bias, chance, or underlying comorbidity. By contrast, an analysis of
288 about 1400 patients from the rheumatology, gastroenterology, and dermatology literature concluded
289 that biologic or targeted synthetic disease-modifying antirheumatic drug therapy has not been
290 associated with more severe COVID-19 outcomes.³²

291
292 Given these data, patients who are not infected with SARS-CoV-2 should continue their biologic or
293 oral therapies for psoriasis and/or psoriatic arthritis in most cases (Guidance 2.2). Nevertheless, the
294 existing literature is largely based on small case series or large registries of spontaneous reports and
295 therefore shared decision-making between clinician and patient is recommended (Guidance 2.2, 2.4,
296 2.5). By contrast, studies in the rheumatology and gastroenterology literature have observed that
297 chronic use of oral corticosteroids is associated with worse COVID-19 outcomes (i.e., hospitalization,
298 or a composite outcome of ICU admission, ventilator use, and/or death).^{32, 91, 92} Chronic systemic
299 corticosteroids should be avoided, if possible, for the management of psoriatic arthritis (guidance
300 2.3)⁹⁵.

301
302 **Category 3:** How should medical care be delivered to patients with psoriatic disease to lower their
303 risk of infection with SARS-CoV-2 while still ensuring quality of care?

304
305 The pandemic has disrupted the ability of patients and providers ability to meet in person due to
306 personal protective equipment shortages, measures implemented to lower risk of SARS-CoV-2

307 transmission, and patients' personal and economic hardships.⁹⁶⁻⁹⁹ Patients express concern about
308 being exposed to SARS-CoV-2 in the clinical setting either directly or indirectly (i.e., on public
309 transportation). Telemedicine can achieve similar outcomes for psoriasis patients compared to in
310 person care with a dermatologist;¹⁰⁰⁻¹⁰² however, limited information available on management of
311 psoriatic arthritis with telemedicine.^{103, 104} Telemedicine should be considered when pandemic
312 conditions limit in-person visits (Guidance 3.1).¹⁰⁵ However, there are limitations of telemedicine, and
313 therefore some patients should be evaluated in person (Guidance 3.2). Office-based phototherapy
314 remains an important option for patients with psoriasis (Guidance 3.3, Table 5).^{106, 107}

315
316 **Category 4:** What should patients with psoriatic disease do to protect themselves from becoming
317 infected with SARS-CoV-2?

318
319 Patients should be advised to follow measures that prevent infection with SARS-CoV-2 (Guidance
320 4.1, E-Table 6)¹⁰⁸. These prevention measures should be followed at work (Guidance 4.2) and school
321 (Guidance 4.3). In cases where measures to prevent transmission of SARS-CoV-2 at work or school
322 cannot be maintained, shared decision-making is recommended to determine if specific
323 accommodations are medically necessary (Guidance 4.2 and 4.3). Psoriasis, even when involving
324 the face or hands, is not a contraindication to face coverings and hand washing respectively, and a
325 variety of approaches can be applied to mitigate skin irritation (E-Table 7).¹⁰⁹⁻¹¹¹ Patients with
326 psoriatic disease should receive the seasonal inactivated (e.g. killed) influenza vaccine, which is of
327 special importance to individual and public health during the COVID-19 pandemic (Guidance 4.4).

328 Providers may consider temporary discontinuation of methotrexate for 2 weeks after flu immunization
329 in order to improve the immunogenicity of seasonal influenza vaccine.¹¹²

330
331 **Category 5:** What should patients with psoriatic disease do if they become infected with SARS-CoV-
332 2?

333
334 Patients with psoriatic disease who become infected with SARS-CoV-2 should monitor their
335 symptoms (E-Table 8), discuss management of their psoriatic disease treatments with their health
336 care providers, and should be prescribed and adhere to evidence-based COVID-19 treatments, if
337 available (Guidance 5.1, 5.2).^{86 113-115} The mortality benefit of initiation of corticosteroids in patients
338 with severe COVID-19 outweighs the risks of potentially precipitating a psoriasis flare, and therefore,
339 acute systemic corticosteroids are not contraindicated for the management of COVID-19 in patients
340 with psoriatic disease (Guidance 5.3).¹¹⁵⁻¹¹⁷ Based on limited available data, and to be consistent with
341 prescribing information, it may be prudent to hold treatments that target the immune system in the
342 setting of suspected or confirmed SARS-CoV-2 infection, but the final decision needs to be
343 determined on a case by case basis. Consistent with guidance from the FDA and the American
344 College of Physicians, the use of hydroxychloroquine or chloroquine is not recommended to prevent
345 or treat COVID-19 in patients with psoriatic disease outside of a clinical trial (guidance 5.4).¹¹⁸⁻¹³⁰
346 Patients with psoriatic disease should be aware that infection with SARS-CoV-2 may result in a flare
347 of psoriasis, which may occur due to discontinuation of psoriasis treatments, treatment of COVID-19
348 with anti-malarial drugs, or due to triggering of inflammation as part of COVID-19 illness (Guidance
349 5.6)^{129, 131-133}.

350
351 Patients with psoriatic disease who become infected with SARS-CoV-2 should follow CDC guidance
352 ¹³⁴⁻¹³⁷ on home isolation and discuss with their healthcare providers when they can end home
353 quarantine (Guidance 5.7, E-Table 9).^{116, 134, 138 139} In the event someone with psoriatic disease has
354 close contact (E-Table 10) with an individual with suspected or confirmed SARS-CoV-2 infection, they
355 should quarantine for 14 days after the last contact, as per CDC guidelines (guidance 5.8)¹⁴⁰. The
356 decision regarding continuing or holding psoriasis treatments during a period of quarantine should be
357 individualized on a case-by-case basis between patient and provider.

358
359 Resumption of psoriasis and/or psoriatic arthritis treatments held during SARS-CoV-2 infection should
360 be decided on a case-by-case basis (guidance 5.5). The persistence of one or more symptoms of
361 COVID-19, such as fatigue or joint pain, beyond the acute phase of the illness can occur¹⁴¹, and may
362 complicate the decision to restart psoriasis or PsA medications. Therefore shared decision-making is
363 recommended (Guidance 2.5).

364

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372 **DISCUSSION**

373

374 The NPF COVID19 TF guidance statements serve to promote optimal management of psoriatic
375 disease during the pandemic. There are several strengths to the approach taken. First, the TF
376 assembled is a geographically diverse team with expertise in adult and pediatric dermatology,
377 rheumatology, critical care, infectious diseases, epidemiology, and basic and translational
378 immunology with experience managing surges in COVID-19. The TF also includes trainees in
379 dermatology, rheumatology and infectious disease who are on the frontlines managing COVID-19
380 patients as well as senior staff from the NPF who are in touch daily with patients and providers
381 worldwide whose questions are brought to the TF. Second, we have established a robust process for
382 staying up to date with the latest literature relevant to COVID-19 and the management of psoriatic
383 disease resulting in the dissemination and evaluation of hundreds of peer reviewed publications by
384 the TF. Third, a validated Delphi approach enabled transparency and reproducibility of our process
385 for evaluating consensus statements.²⁵⁻³¹

386

387 Several limitations are acknowledged. First, the TF did not formally grade the strength of our
388 recommendations.¹⁴² With the exception of guidance statements 4.4, 5.2, and 5.4, which are based
389 on large scale randomized controlled trials, the evidence behind many of the guidance statements
390 was often limited in quality. For example, studies evaluating the safety of treatments for psoriasis and
391 psoriatic arthritis in the setting of COVID-19 involve small case series or large collections of case
392 reports and thus should be considered preliminary. Large scale, longer term, population-based

393 studies, with appropriate comparator groups, adjustment for relevant confounding variables, and
394 complete ascertainment of clinically important COVID-19 outcomes are urgently needed. Second, the
395 guidance is not intended to be proscriptive nor comprehensive. The ultimate judgment regarding how
396 these recommendations should be followed is best left with the treating clinician and the patient in
397 light of the circumstances presented by the individual patient, and the variability and biological
398 behavior of the disease and therapeutics. Third, the TF does not have global representation of
399 experts or direct inclusion of patients.

400
401 The guidance statements are intended to be part of a “living” document that will be updated and
402 amended when necessary by the rapidly evolving science of COVID-19. Readers are encouraged to
403 visit <https://www.psoriasis.org/covid-19-resource-center> regularly for the latest guidance from the TF
404 in order to promote optimal care and outcomes for patients with psoriatic disease during the
405 pandemic.

Guidance #	Guidance Statement	Level of Consensus
1.1	It is not known with certainty if having psoriatic disease meaningfully alters the risks of contracting SARS-CoV-2 (the virus that causes COVID-19 illness) or having a worse course of COVID-19 illness. Existing data, with some exceptions, generally suggest that patients with psoriasis and/or psoriatic arthritis have similar rates of SARS-CoV-2 infection and COVID-19 outcomes as the general population.	Moderate
1.2	The likelihood of poor outcomes from COVID-19 is driven by risk factors such as older age and comorbidities such as chronic heart, lung, or kidney disease and metabolic disorders such as diabetes and obesity. Patients with psoriatic disease are more prone to these comorbidities, particularly in those with more severe disease.	High
2.1	It is not known with certainty if treatments for psoriasis and/or psoriatic arthritis meaningfully alter the risks of contracting SARS-CoV-2 (the virus that causes COVID-19 illness) or having a worse course of COVID-19 illness. Existing data generally suggest that treatments for psoriasis and/or psoriatic arthritis do not meaningfully alter the risk of acquiring SARS-CoV-2 infection or having worse COVID-19 outcomes.	Moderate
2.2	It is recommended that patients who are not infected with SARS-CoV-2 continue their biologic or oral therapies for psoriasis and/or psoriatic arthritis in most cases. Shared decision-making between clinician and patient is recommended to guide discussions about use of systemic therapies during the pandemic (see guidance 2.5 for definition of shared decision making).	High
2.3	Chronic systemic corticosteroids should be avoided if possible for the management of psoriatic arthritis. If patients require chronic systemic corticosteroids for management of psoriatic arthritis, the dose should be tapered to the lowest dose necessary to achieve the desired therapeutic effect. Chronic systemic corticosteroid use for the treatment of psoriatic disease at the time of acute infection with SARS-CoV-2 may be associated with worse outcomes from COVID19 illness. It is important to note, however, that corticosteroids may improve outcomes for COVID19 when initiated in hospitalized patients requiring oxygen treatment.	High
2.4	Individuals newly diagnosed with psoriasis and/or psoriatic arthritis or who are currently not receiving treatment should be aware that untreated psoriatic disease is associated with serious impact on physical and emotional health, and in the case of psoriatic arthritis, can lead to permanent joint damage and disability. Shared decision making between clinician and patient is recommended to guide discussions about use of systemic therapies during the pandemic (see guidance 2.5 for shared decision making).	High
2.5	Providers recommend shared decision making with patients. Shared decision making between clinician and patient should be guided by several factors, including the potential benefits of treatment, the activity of skin and/or joint disease and response to previous therapies, as well as the patient's underlying risk for poor COVID19 outcomes, and ability to maintain measures to prevent infection with SARS-CoV-2 such as hand hygiene, wearing of masks, and physical distancing as required by	Moderate

	<p>pandemic conditions. A review of known benefits of treatment accompanied by acknowledgment of the uncertainty related to the COVID19 pandemic and a discussion of a patient's individual circumstances and preferences should guide decision making.</p>	
3.1	<p>Telemedicine should be offered to manage patients wherever possible when local restrictions or pandemic conditions limit the ability for in-person visits. The following patients can be managed with telemedicine: Patients who are clinically stable and previously started on psoriatic disease treatment. Patients requiring a follow-up visit and refills for medication. New patients without timely access to in-person visits. Patients diagnosed with COVID-19 who are experiencing a significant flare. If telemedicine visits become inadequate to monitor patients' disease progress or manage new or evolving symptoms or signs of skin and joint disease, clinicians and patients should consider in-person visits.</p>	Moderate
3.2	<p>The following patients should be considered for in-person care if pandemic conditions allow (i.e., the clinical practice is open to see patients in person): Patients at risk for melanoma and non-melanoma skin cancer should be seen in person at a frequency consistent with standard of care for a full skin examination. New patients establishing care. Patients experiencing unstable psoriatic disease/flare. Patients requiring a thorough skin/or joint examination and a full physical examination for rheumatology patients.</p>	Moderate
3.3	<p>Providers recommend the recent guidelines published by Lim et al on how to optimize safety of office phototherapy for the patients and staff in the setting of the pandemic. See Table 5 for details.</p>	High
4.1	<p>Patients should be advised to follow measures that prevent infection with SARS-CoV-2. These preventative measures include: To practice good hand hygiene, to maintain physical distancing from non-household members, and to wear a face covering of the nose and mouth when indoors (except in their own home), and when outdoors, but unable to maintain physical distancing. Face coverings should not be used in children under 2 years old due to risk of suffocation. See E Table 6 for details.</p>	High
4.2	<p>Patients with psoriatic disease should follow measures to prevent infection with SARS-CoV-2 in the workplace. If the work place environment does not allow for maintenance of prevention measures, a shared decision-making process between the patient and his/her clinician is recommended to determine if specific accommodations are medically necessary, especially for individuals whom, due to age or underlying health conditions, are at especially high risk for poor COVID19 outcomes.</p>	Moderate
4.3	<p>Youth with psoriatic disease should follow measures to prevent infection with SARS-CoV-2 while at school. These measures include maintaining 6 feet of physical distancing, consistently wearing masks if over the age of 2 years, and washing hands frequently. If the school environment is unable to ensure these prevention measures or families believe their child may not be able to adhere to these practices, we encourage discussion with the patient, caregivers, and his/her clinician to collectively develop a learning plan in the best interest and safety of the child.</p>	High
4.4.	<p>Patients with psoriatic disease should receive the seasonal inactivated (e.g. killed) influenza vaccine when it becomes available. While this vaccine will not protect against SARS-CoV-2, influenza vaccine lowers the risk of infection from seasonal influenza, which is of special importance to individual and public health during the</p>	High

	COVID-19 pandemic. Patients taking systemic medications for psoriasis or psoriatic arthritis should discuss the timing of influenza vaccination with respect to their systemic psoriatic medications with their health care provider in order to optimize the response to the influenza vaccine.	
5.1	Patients with psoriatic disease who become infected with SARS-CoV-2 should monitor their symptoms and discuss the management of their treatments with their health care providers.	Moderate
5.2	Patients with psoriatic disease who become infected with SARS-CoV-2 should be prescribed and adhere to evidence-based COVID-19 therapies. Evidence-based therapies should be used, currently including supportive care for patients with mild disease, as well as dexamethasone (systemic corticosteroids) and remdesivir treatment, if available, for hospitalized patients requiring supplemental oxygen. The care of the hospitalized patient should include consultation with rheumatologists, dermatologists, and/or infectious disease specialists as medically necessary.	Moderate
5.3	Systemic corticosteroids for the management of COVID-19 in patients with psoriatic disease are not contraindicated and should not be withheld due to the concern of potentially flaring psoriasis upon withdrawal of corticosteroids when evidence demonstrates the effectiveness for treating COVID-19 illness.	Moderate
5.4	Hydroxychloroquine or chloroquine are not recommended for the prevention or treatment of COVID-19 in patients with psoriatic disease outside of a clinical trial. Cases of psoriasis flare have been reported in patients on anti-malarial medications, but the clinical significance is not well understood.	High
5.5	Resumption of psoriasis and/or psoriatic arthritis treatments held during SARS-CoV-2 infection should be decided on a case-by-case basis. Most patients can restart psoriasis and/or psoriatic arthritis treatments after complete resolution of COVID-19 symptoms. In those who have had a severe hospital course, shared decision making made on a case-by-case basis is recommended.	Moderate
5.6	Patients with psoriatic disease should be aware that infection with SARS-CoV-2 may result in a flare of psoriasis based on case reports. The clinical significance of the risk of COVID-19 flaring psoriasis is not known.	Moderate
5.7	Patients with psoriatic disease who become infected with SARS-CoV-2 should follow CDC guidance on home isolation and discuss with their healthcare providers when they can end home isolation. We recommend waiting a minimum of 10 days after COVID-19 symptom onset, along with fever resolution for 24 hours without antipyretics and improvement in other symptoms, before ending home isolation and returning to work, as patients are unlikely to be infectious after this point. In patients with severe cases of COVID-19 or when psoriasis patients are on medications with immunosuppressive effects, we recommend a case-by-case approach to determining the length of home isolation.	Moderate
5.8	Patients with close contact to someone with SARS-CoV-2 infection should quarantine themselves for 14 days after the last contact and discuss the management of their psoriatic disease treatment with their medical provider(s).	Moderate

*SD: Standard Deviation **IQR: Interquartile Range

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415 Table 5: Methods to Reduce Risk of SARS-CoV-2 Transmission During Delivery of Office-Based Phototherapy

416

Patient Protocol	Staff Protocol
<ul style="list-style-type: none"> • Screened for signs and symptoms of COVID-19 before entering the unit, understanding that treatment will be denied to symptomatic patients. • Attend the phototherapy appointment alone. Minors can be accompanied by a guardian, given all safety protocols are observed • Apply hand sanitizer upon entering and leaving the unit. • Patient provided with goggles, must sanitize them thoroughly, according to manufacturer's instruction • Wear a mask, unless phototherapy treatment of the face is required • Practice physical distancing 	<ul style="list-style-type: none"> • Schedule patients approximately 30 minutes apart per booth • Practice physical distancing, particularly in waiting area, with seats 6 feet apart. • Wear a mask, eye protection, and apply hand sanitizer before and after each patient encounter. • Avoid turning on the fan of the phototherapy unit if possible; if need be, treatment can be fractionated to avoid excessive heat build-up in the unit • Disinfect high-touch surfaces in the changing area after each patient • Disinfect high-touch area of the phototherapy equipment in between patients • Provide patients with disposable bags to store personal items • Provide goggles to patients if need be; ensuring they are sanitized thoroughly and stored in an

	individual bag
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417 Adapted from Lim et al.¹⁰⁶

418

419 **Abbreviations and Acronyms**

420 • SARS COV-2 : Severe Acute Respiratory Coronavirus 2

421 • COVID-19: Coronavirus disease 2019

422 • IL: InterLeukin

423 • TNF: Tumor Necrosis Factor

424 • PsA: Psoriatic Arthritis

425 • TF: Task Force

426 • NPF: National Psoriasis Foundation

427 • IBD: Inflammatory Bowel Disease

428 • CDC: Centers for Disease Control

429 • WHO: World Health Organization

430 • FDA: Food and Drug Administration

431 • NIH: National Institutes of Health

432 • HR: Hazards Ratio

433 • JAK inhibitor: Janus Kinase Inhibitor

434 • SD: Standard Deviation

435 • IQR: Inter Quartile Range

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437

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440

Acknowledgements: The authors thank Monika Goyal, MD MSCE for her expert input on guidance statement

4.3

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Capsule Summary:

- The NPF COVID-19 Task Force produced 22 guidance statements to promote optimal management of psoriatic disease during the pandemic.
- Shared decision making is recommended as is adherence to evidence-based recommendations when available. The guidance statements will be updated when necessary in accordance with rapidly evolving science of COVID-19.