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# Psoriasis in Chronic and Acute Patients: A Comprehensive Care Guide for Practicing Nurses

Elena Segev

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# Psoriasis in Chronic and Acute Patients: A Comprehensive Care Guide for Practicing Nurses

**Abstract**

A guide for practicing nurses for psoriasis patient care. Includes pathophysiology, treatments, different demographics, psychological aspects and resources.

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Dr. Sandra Restaino

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PSORIASIS IN CHRONIC AND ACUTE PATIENTS: A COMPREHENSIVE CARE  
GUIDE FOR PRACTICING NURSES

By

Elena Segev

A Senior Thesis Submitted to the

Eastern Michigan University

Honors College

in Partial Fulfillment of the Requirements for Graduation

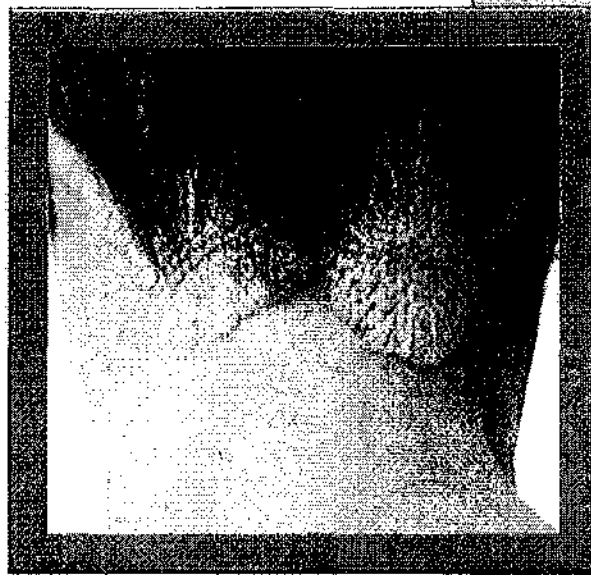
with Honors in Nursing for School of Nursing

Approved at Ypsilanti, Michigan, on this date

April 22, 2014

# Psoriasis in Chronic and Acute Patients

A Comprehensive Care Guide for Practicing Nurses



Psoriasis is a common autoimmune skin condition affecting 2-4% of the worldwide population. It is common practice for nurses who do not specialize in the field of dermatology taking care of patients with psoriasis as primary or secondary condition. This guide serves as a helpful tool for nurses. It provides information regarding psoriasis' physiological features, risk factors, treatment, and expected adverse effects. Psychological aspect of living with psoriasis on a day-to-day basis and effect it can have on quality of life are also addressed. Lastly, additional resources are listed for nurses' and patients' use.

**By Elena Segev, BA  
Sandra Restaino, DNP, FAANP**

# Table of Contents

Introduction to Psoriasis.....	2
Types of Psoriasis.....	4
Comorbidities.....	5
Treatment of Psoriasis .....	6
Special Demographics: Children and Adolescents .....	8
Special Demographics: Pregnant Women.....	9
Special Demographics: Surgical and Acute Patients .....	10
Psychological Aspect .....	11
Lifestyle Alterations .....	12
Resources .....	13
References.....	14

## **Introduction to Psoriasis**

Psoriasis is one of the most common autoimmune chronic conditions with 2-4% of worldwide population suffering from it. It is typical to all ethnicities, races, ages, and sexes.

It is caused by abnormally fast skin cells proliferation which is mediated by extremely reactive T-helper 17 (Th17) white blood cells and probably related to angiogenesis (new blood vessels formation). It is believed to have genetic predisposition. 49% of the patients have first degree relatives with the disease. As much as 75% prevalence has been found in monozygotic twins. A dominant allele is the related genetic component. Different ethnicities have different gene for psoriasis singled out.

The exact trigger for psoriasis is unknown but it is associated with extreme stress, alcohol consumption, certain diseases (streptococcal infections, Crohn's disease), metabolic syndrome, and some medications.

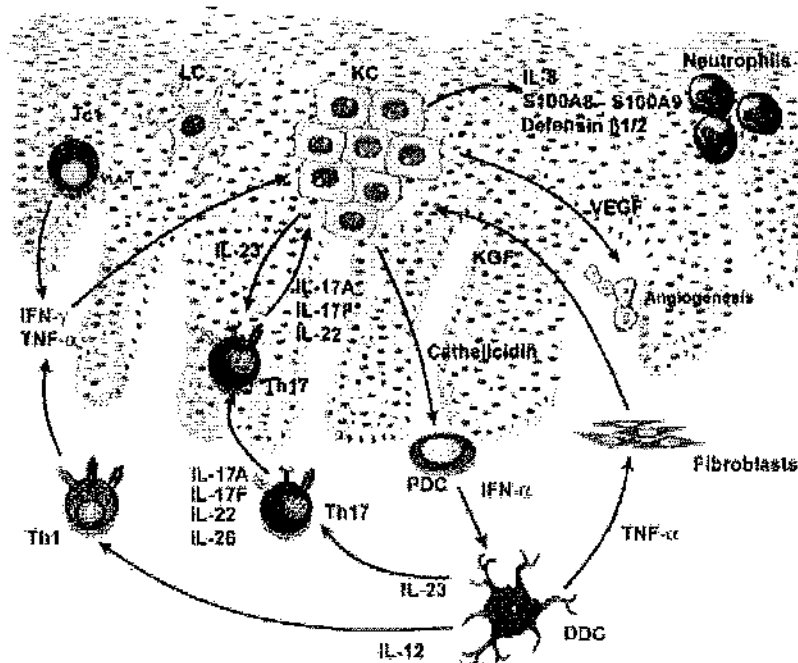
This is a lifelong condition with no cure and is a truly human disease that is not found in animals. This is why psoriasis is hard to mimic on laboratory animals, which make a research more complicated. Symptom management is the only current option for patients with psoriasis.

## Pathophysiology

Psoriasis is a chain of hyperimmune reactions. Leukocytes Langerhans cells and Th17 cells release inflammatory cytokines as a reaction to a certain trigger. Angiogenesis seems to promote those inflammatory reactions but also streptococcal bacteria and physical damage. Inflammatory agents like tumor necrosis factor (TNF- $\alpha$ ), interleukins (IL) IL-23, IL-17, and interferon -  $\gamma$  lead to continuous over-reaction that causes an uncontrollable keratinocyte proliferation. The usual cell's lifecycle of 28 days shortens instead to four days.

It is diagnosed based on the gross features and family history of psoriasis. One of the most common tools used to assess severity of the disorder is Psoriasis Area and Severity Index (PASI) with rating 0 to 4, four being the most severe. Helpful links are cited in the resources section.

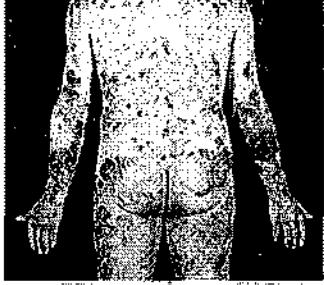
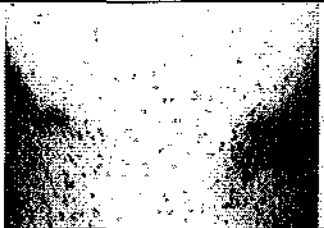

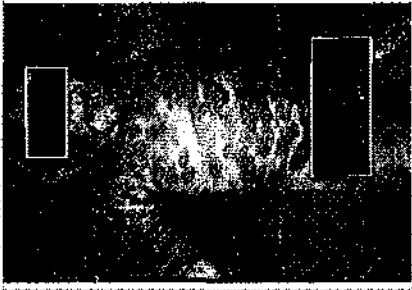
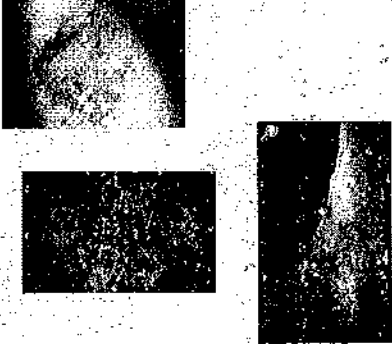
Psoriasis is known to have a few related comorbidities. It includes psoriatic arthritis, cardiovascular diseases, diabetes, skin infections, and various psychological problems from distorted body image to depression.



*Th17 lymphocytes and psoriasis: Th17 interact with immune cells, primarily dendritic cells and fibroblasts residing in skin that trigger psoriatic reaction of keratinocytes (KS) proliferation.*

*Image from Journal of Investigative Dermatology*

## Types of Psoriasis

<p style="text-align: center;"><b>Plaque psoriasis</b></p> <p>Most common type of psoriasis with distinguished gross features. The most studied form.</p>	
<p style="text-align: center;"><b>Guttate psoriasis</b></p> <p>Typical in children, onset usually indicates plaque psoriasis in adulthood.</p>	
<p style="text-align: center;"><b>Pustular psoriasis</b></p> <p>Relatively rare psoriasis. <i>Generalized pustular psoriasis</i>: rapid spread of inflamed skin patches, accompanied with pain, fever, and lymphadenopathy. Potentially life threatening due to its demanding effect on the cardio-vascular and urinary systems.</p>	
<p style="text-align: center;"><b>Erythrodermic psoriasis</b></p> <p>Rare form of psoriasis. Erythema with severe itching, pain, and scaling. Weakened immune system makes a patient vulnerable to infections, compromised body temperature homeostasis, and chemical balance disruption.</p>	
<p style="text-align: center;"><b>Other forms of psoriasis</b></p> <ul style="list-style-type: none"> <li>• Inverse psoriasis (in skin folds)</li> <li>• Palmar (hand) psoriasis</li> <li>• Plantar (foot) psoriasis</li> <li>• Nailfold psoriasis</li> <li>• Facial psoriasis</li> </ul>	



## Comorbidities

Patients with psoriasis are more likely to have or develop additional health conditions. Such conditions include but not limited to:

**Psoriatic arthritis:** About 10% of psoriasis patients develop arthritis related to psoriatic inflammatory reactions. This problem is especially overlooked in children if not reported. *Assess your patient for acute or chronic joint pain.*

**Cardiovascular diseases and conditions:** In recent years psoriasis is seen by the specialists as an independent risk factor for developing cardiac conditions as myocardial infarction and stroke and vascular diseases like peripheral vessels blood flow resistance, cerebrovascular damage, and occlusive vascular disorders. *Pay very close attention to the patient's cardiovascular status. Blood pressure screening and cardiac function assessment should be a priority.*

**Crohn's disease:** Many researchers see a connection between both disorders. There is strong evidence that the same gene is responsible for both. *Assess for gastrointestinal tract function, quality of stool, bowel movement, pain, and other signs and symptoms related to Crohn's disease.*

**Diabetes mellitus:** Although there is no strong support that psoriasis causes DM, many studies show that patients with psoriasis in general have higher rates of DM than general population. *Blood glucose and symptoms of diabetes should be a routine during annual physical checkup for early detection.*

**Depression:** Burden of a deforming disease can take toll on the mental status of the patient with psoriasis. *Do not forget to ask questions related to quality of life, mood, and self-image. Prevention and treatment of depression is a very important step in successful disease management.*

## Treatment of Psoriasis

### Traditional Methods

Treatment	Description	Considerations
<b>Corticosteroids/ Retinoids/ Vitamin D analogs Topical Agents</b>	Steroid induced ointment, first line treatment for newly diagnosed and mild cases of psoriasis by weakening immune reaction and slowing down cells growth.	Due to tissue thinning effect cannot be used for long periods of time. Apply carefully within a lesion border to avoid healthy cells destruction. Limited to mild and moderate cases. Retinoid and Vitamin D can be teratogenic.
<b>Phototherapy</b>	Ultraviolet light B (UVB) and Psoralen Ultraviolet A (PUVA). Penetrates skin, slows down keratinocytes growth, and eradicates old tissue. One of the most effective symptom management.	Performed in clinical setting. May alleviate symptoms (itching, redness) before clearing begins. A few studies warn about potential for skin cancer. Urge patients to follow up with dermatologist after treatment. PUVA is considered a higher risk for skin cancer development.
<b>Climatotherapy</b>	Same mode of action as UVB only from the sun. Some geographical points of earth present perfect conditions for safe UVB penetration. Those points are the Dead Sea, Balneo, Italy, many points in Poland and more.	In general any sun exposure of psoriatic skin is beneficial. Avoid overexposure. Recommend gradual increase exposure time. Consult doctor about planning. Results might not be immediate; 2-4 weeks may be needed before the improvement.
<b>Systemic Agents</b>	Systemic drugs that act on immune system. Include methotrexate (Trexall), cyclosporine (Restasis), oral retinoids.	Immunosuppressant. Watch for opportunistic infections. Supplement diet with folate. Extremely teratogenic.

<b>Biologic Agents</b>	For treatment of moderate to severe psoriasis. Monoclonal antibodies suppress immune reaction reversing psoriasis symptoms. Includes brands adalimumab (Humira), etanercept (Enbrel), infliximab (Remicade), and more.	Systemic immunosuppressive. Pay close attention to infections. Educate about immunosuppression precautions such as avoiding crowded places, immunization, hand hygiene, immediate attention from the healthcare professional if infection signs occur (fever, redness, swelling).
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## Experimental Methods

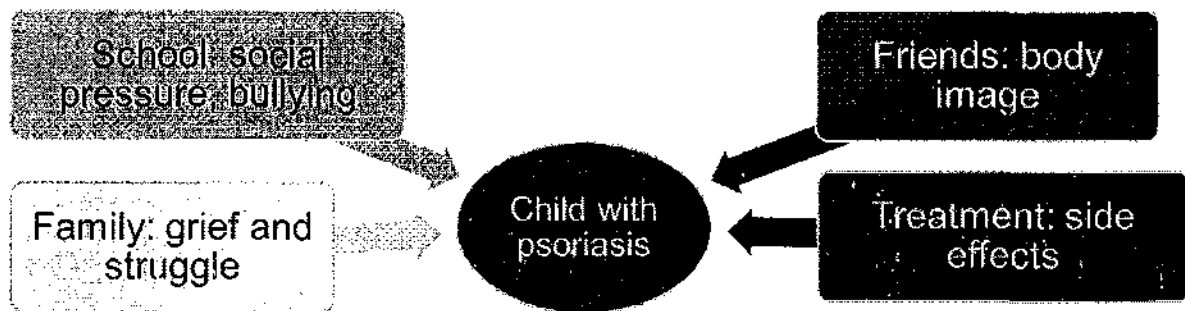
<b>Treatment</b>	<b>Description</b>	<b>Considerations</b>
<b>Nutritional Therapy</b>	Certain foods are found to improve symptoms or to alleviate them. Favorable groups include fish, lamb, fruits, vegetables (except tomatoes, eggplants, and peppers), whole grains, and nuts.	Studies are very limited and inconsistent. Some general suggestions can be suggested for healthy lifestyle. Alcohol consumption worsens symptoms.
<b>Genetic Therapy</b>	A corrected gene is being inserted into the skin cell and replaces genetic material by mitosis. Insertion via micro-needles and electric beam.	Experimental studies performed on mice. Not safe as there is no studied long term or adverse effects. No human trial has been performed.
<b>Protein Therapy</b>	A new specific protein has been singled out in 2012. The protein located on gene REG3A has shown a strong correlation to psoriasis and has a potential to become a new target for evolving treatments.	No studies have been performed for such treatment. The discovery lays a ground for the future explorations.

## Special Demographics: Children and Adolescents

It is important for nurses to understand that direct involvement in child's care has its impact on quality on family dynamics. Those families usually have restricted social activities or cancelled trips due to scheduled or long term treatments. Depression, frustration, emotional stress, concerns, anxiety due to lack of control over child's disease and knowledge of its lifelong effect are very common in those families. Financial burden because of treatment expenses also should be considered as many of the treatments are expensive.

**Family assessment** is as important as the child carrying this condition. Carefully listen to the child's and parents' concerns. School and society in general present a great potential for increased peer pressure, bullying, and rejection due to expressive features of psoriasis. Kids feel ashamed, stared at, and marked as contagious. Such a state is a risk factor for developing early signs of depression.

A successful assessment will find the information about current treatment, difficulties in treatment (side effects, schedule, costs), presence of social pressure (such as teasing, bullying, staring), body image status, access to information and services, emotional status for depression or suicidal ideations, and active participation in a support group or counseling. It is also important to reinforce the education regarding the treatments, especially these with severe side effects, and continue monitoring physiological and psychological status.



## Special Demographics: Pregnant Women

As any other chronic disease, psoriasis in pregnancy presents certain risks for negative outcomes. Certain complication related to the course of the disease are being detected and reported. There is also a strong evidence for the positive impact of pregnancy on psoriasis. Below is a summary of potential outcomes and proper handling of those cases. Generally, psoriasis is not considered a serious threatening condition to a future mother by the healthcare personnel and this information can be easily overlooked. Importance of asking the patient relevant questions is unquestionable. Education about those risks is equally important.

<b>Psoriatic Flares</b>	General improvement of the skin condition from 10 to 20 weeks of pregnancy due to high maternal blood estrogen. However, about 90% of the patients will develop flares within 6 weeks postpartum. Educate the patient regarding expected worsening of the symptoms.
<b>Chronic Hypertension</b>	Consistent evidence that pregnant women with psoriasis are more likely to develop chronic hypertension. Blood pressure screening and potential management are vital as hypertension can lead to severe complications including fatal outcome.
<b>Recurring Spontaneous Abortions</b>	As with hypertensions, psoriasis puts pregnant women at higher risk for spontaneous abortions. Obtain history of previous pregnancies in order to determine this risk.
<b>Cesarean Section</b>	Psoriasis presents as an independent risk factor for caesarian delivery.
<b>Psoriasis Management</b>	<b>First line:</b> topical corticosteroids and emollients Avoid: coal tar and vitamin D-like substances. Not enough evidence for their safety <b>Second line:</b> UVB. <b>Must be avoided due to teratogenicity:</b> oral and topical retinoids (related to vitamin A), methotrexate, calcipotriol derivatives. Biological agents did not show tetragenicity but their effect on pregnancy is unknown. Take precaution during severe psoriasis flares.

## Special Demographics: Surgical and Acute Patients

There is a split of opinion between dermatologists and surgical specialists regarding operational incisions on patients with active psoriasis. Dermatologists in general do not see any contraindications for cutting psoriasis covered skin. Surgeons, on the other hand, tend to oppose such practices due to increased risk of infections. The tendency is to treat active psoriasis before the elective procedure. There is very limited research in this area and the table below summarizes some possible known scenarios on acutely ill patients with comorbid psoriasis.

<p><b>Surgery on active psoriatic skin</b></p>	<p>Psoriasis treatment initiation prior to a surgery is recommended to avoid infection complications. If the surgery is urgent increased dose antibiotics and corticosteroid therapy immediately after surgery is anticipated. Usually surgeons will not perform an incision longer than 30cm on psoriatic skin. However, there is evidence that such incisions do not necessarily cause further complications.</p>
<p><b>Post-Surgical Patients with Nosocomial Infections</b></p>	<p>The skin with psoriasis is a favorable environment for opportunistic microorganisms. Use of silver induced dressing showed a significant improvement up until complete healing of postsurgical wounds complications. One case study presented a complication on a patient with psoriasis who underwent an orthopedic surgery and acquired methicillin resistant <i>Staphylococcus aureus</i> (MRSA). The client was completely cleared with silver covered dressing after many months of unsuccessful antibiotic treatment and traditional dressing.</p>
<p><b>Immunocompromised patients and patients with HIV</b></p>	<p>Treatment with biologic and systemic agents, especially with mycophenolate is highly recommended. Study shows that patients with weakened immune system such as organ transplant patients and human immunodeficiency virus (HIV) infected clients show positive results with use of this treatment.</p>
<p><b>Koebner (isomorphic) phenomenon</b></p>	<p>New pathological lesions development at the site of surgical procedures or other traumas on clear skin in patients with psoriasis or other cutaneous conditions. A response to mechanical or thermal trauma, dermatoses, allergic reactions, therapies like iodine application or ultraviolet light and other interventions. Pay close attention to new formation in postoperative/traumatic patients.</p>

## Psychological Aspect

**Distorted body image:** most of the psoriasis patients feel unclean and messy due to constant flaking of the skin. This adds to reduction of quality of everyday life. Many patients also feel that they are being stared at by strangers.

**Shame and uncertainty:** The vast majority of the psoriasis clients make efforts to cover psoriasis expression to avoid an unwanted attention to their condition. In some cases they cover and hide it from their families, spouses or even physician. Asking appropriate questions and expressing non-judgmental attitude is key.

**Stigmatization and bullying:** Most of the patients are convinced that general public sees psoriasis as a contagious disease. It is more prominent in teenagers and younger adults who are subjected to unrealistic body image standard promoted by the media and society. Bullying increases chances for distorted body image and personal unworthiness. The severity of the symptoms correlated to the low self-esteem, and lower quality of life, especially in women. Pay close attention to the patient's needs and discuss psychological status as a part of assessment.

**Relationship management:** Severe psoriasis symptoms become a challenge or even an obstacle in relationship for both men and women suffering from psoriasis. Some of them even go through rejection due to their appearance. Studies show that patients with psoriasis are more fearful to engage in sexual relationships due to distorted self-image.

**Stress:** About half of psoriasis patients experience increased stress level due to exacerbation episodes. Such a reaction would trigger even more severe psoriatic response causing even more stress. It is important to recognize if this vicious circle exists in your patient's life.

**Harmful lifestyles:** It is also found that many psoriasis patients are likely to engage in self-destructive behaviors like binge eating, substance abuse and unprotected sexual contact. There is a correlation between personal belief in symptom management and treatment and harmful behavior. Addressing those issues during the formal assessment is an important step for improving quality of life.

## Lifestyle Alterations

**Symptom management:** Follow the treatment regimen closely. Use emollients for itch control; manage a diary of the flare outbreaks to find a pattern and triggers.

**Avoidance of known triggers:** Prevent streptococcal infections, avoid severe stress.

**Infection control:** Avoid large crowds, especially during infectious outbreaks, hand hygiene, inspect flared sites for signs of infections, seek immediate attention if new lesions or suspicious formations appear. Be especially vigilant after invasive medical procedures.

**Healthy lifestyle:** Smoking cessation, limited alcohol consumption, balanced diet, active lifestyle and hydration are highly encouraged. Avoid synthetic tight clothing or wool – they can cause itch. Reduce consumption of foods with inflammatory properties like animal protein and fat.

**Stress reduction:** Use relaxation techniques like meditation, deep breathing, muscle relaxation, guided imagery, and counseling. Develop coping plan with your therapist. Utilize local or online support groups.

**Self-perception:** Think positive. Wear comfortable, loose-fitting clothes. Avoid dark colors as they make skin flakes too visible. Carry emollients with you. Do not avoid sun: the sun is an excellent source for UVB which is beneficial for psoriasis management. Tight clothes also can cause excessive sweating, which alleviates symptoms. Do not be afraid of talking about your condition; people are more likely to understand if you are open about it.

**Managing relationships:** Discuss your fears, concerns, and experience with your family and friends. Try to be as clear as possible about your experience in order for them to understand your frustration. Do not blame them but rather let them participate in your routine. Do not limit social interaction.

**Adjustment to social interaction:** Create a support circle. Be open with your management about your condition and request accommodations if needed. Be organized with your doctor appointments; discuss the issue with management to find appropriate arrangements.

**Up to date education:** Keep up with the most recent findings and researches. Do not skip doctor appointments. Subscribe to newsletter services from National Psoriasis Foundation or other organizations. Drug companies producing psoriasis medications also have access to most recent updates on condition's findings.



## Resources

### *Resources for nursing education:*

*Agency for Healthcare Research and Quality (AHRQ):*

<http://www.guideline.gov/content.aspx?id=38575&search=psoriasis>

*Medline Plus:* <http://www.nlm.nih.gov/medlineplus/psoriasis.html>

*PASI assessment tool:* [http://www.pasitraining.com/calculator/step\\_1.php](http://www.pasitraining.com/calculator/step_1.php)

### *Resources for patients and their families:*

*International Federation of Psoriasis Associations (IFPA):* <http://www.ifpa-pso.org/>

*National Psoriasis Foundation:* [www.psoriasis.org](http://www.psoriasis.org)

*Place for kids with psoriasis:* [www.PsoMe.org](http://www.PsoMe.org)

*Psoriasis Cure Now:* <http://www.psoriasis-cure-now.org/>

*Psoriasis Speaks:* [http://www.psoriasis.com/?cid=ppe\\_ppd\\_hderm\\_ggl\\_041021](http://www.psoriasis.com/?cid=ppe_ppd_hderm_ggl_041021)

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