

**PREDNISOLONE- prednisolone solution**  
**PAI Holdings, LLC dba PAI Pharma**

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**PrednisoLONE Oral Solution USP**

**15 mg/5 mL**

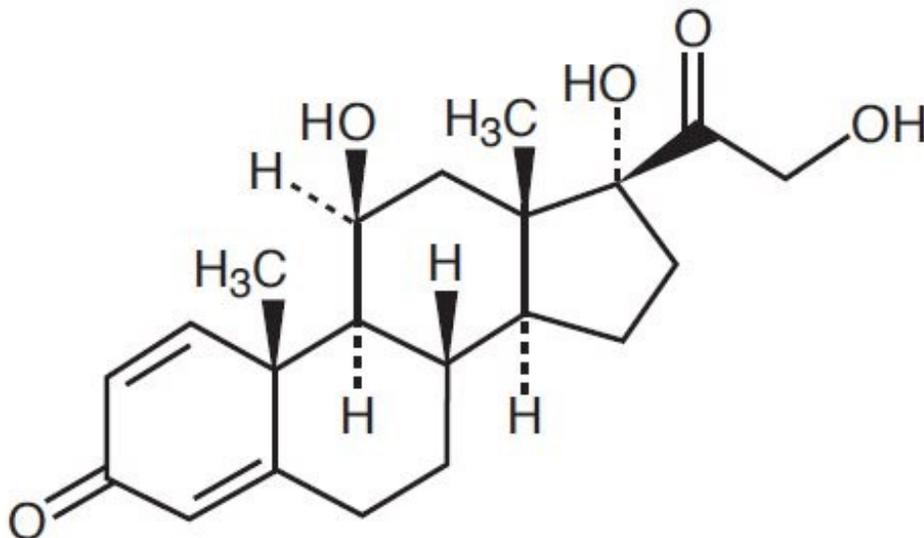
**Rx Only**

**DESCRIPTION**

Prednisolone Oral Solution USP contains prednisolone which is a glucocorticoid. Glucocorticoids are adrenocortical steroids, both naturally occurring and synthetic, which are readily absorbed from the gastrointestinal tract.

Prednisolone is a white to practically white, odorless, crystalline powder. It is very slightly soluble in water, soluble in methanol and in dioxane; sparingly soluble in acetone and in alcohol; slightly soluble in chloroform.

The chemical name for prednisolone is Pregna-1,4-diene-3,20-dione,11,17,21-trihydroxy-,(11 $\beta$ )-.



$C_{21}H_{28}O_5$

M.W. 360.45

**Prednisolone Oral Solution USP, 15 mg/5 mL** contains 15 mg of prednisolone in each 5 mL. Benzoic acid, 0.1% is added as a preservative. It also contains alcohol 5%, citric acid (anhydrous), edetate disodium, glycerin, propylene glycol, purified water, saccharin sodium, sucrose, FD&C blue #1 and FD&C red #40.

**CLINICAL PHARMACOLOGY**

Naturally occurring glucocorticoids (hydrocortisone and cortisone), which also have salt-

retaining properties, are used as replacement therapy in adrenocortical deficiency states. Their synthetic analogs such as prednisolone are primarily used for their potent anti-inflammatory effects in disorders of many organ systems.

Glucocorticoids such as prednisolone cause profound and varied metabolic effects. In addition, they modify the body's immune responses to diverse stimuli.

## **INDICATIONS AND USAGE**

Prednisolone Oral Solution USP is indicated in the following conditions:

### **1. Endocrine Disorders**

Primary or secondary adrenocortical insufficiency (hydrocortisone or cortisone is the first choice: synthetic analogs may be used in conjunction with mineralocorticoids where applicable: in infancy mineralocorticoid supplementation is of particular importance).

- Congenital adrenal hyperplasia

- Nonsuppurative thyroiditis

- Hypercalcemia associated with cancer

### **2. Rheumatic Disorders**

As adjunctive therapy for short-term administration (to tide the patient over an acute episode or exacerbation) in:

- Psoriatic arthritis

- Rheumatoid arthritis, including juvenile rheumatoid arthritis (selected cases may require low-dose maintenance therapy)

- Ankylosing spondylitis

- Acute and subacute bursitis

- Acute nonspecific tenosynovitis

- Acute gouty arthritis

- Post-traumatic osteoarthritis

- Synovitis of osteoarthritis

- Epicondylitis

### **3. Collagen Diseases**

During an exacerbation or as maintenance therapy in selected cases of:

- Systemic lupus erythematosus

- Acute rheumatic carditis

### **4. Dermatologic Diseases**

- Pemphigus

- Bullous dermatitis herpetiformis

Severe erythema multiforme (Stevens-Johnson syndrome)

Exfoliative dermatitis

Mycosis fungoides

Severe psoriasis

Severe seborrheic dermatitis

## **5. Allergic States**

Control of severe or incapacitating allergic conditions intractable to adequate trials of conventional treatment:

Seasonal or perennial allergic rhinitis

Bronchial asthma

Contact dermatitis

Atopic dermatitis

Serum sickness

Drug hypersensitivity reactions

## **6. Ophthalmic Diseases**

Severe acute and chronic allergic and inflammatory processes involving the eye and its adnexa such as:

Allergic corneal marginal ulcers

Herpes zoster ophthalmicus

Anterior segment inflammation

Diffuse posterior uveitis and choroiditis

Sympathetic ophthalmia

Allergic conjunctivitis

Keratitis

Chorioretinitis

Optic neuritis

Iritis and Iridocyclitis

## **7. Respiratory Disorders**

Symptomatic sarcoidosis

Loeffler's syndrome not manageable by other means

Berylliosis

Fulminating or disseminated pulmonary tuberculosis when used concurrently with appropriate chemotherapy

Aspiration pneumonitis

## **8. Hematologic Disorders**

Idiopathic thrombocytopenic purpura in adults

Secondary thrombocytopenia in adults

Acquired (autoimmune) hemolytic anemia

Erythroblastopenia (RBC anemia)

Congenital (erythroid) hypoplastic anemia

## **9. Neoplastic Diseases**

For palliative management of:

Leukemias and lymphomas in adults

Acute leukemia of childhood

## **10. Edematous States**

To induce a diuresis or remission of proteinuria in the nephrotic syndrome, without uremia, of the idiopathic type or that due to lupus erythematosus.

## **11. Gastrointestinal Diseases**

To tide the patient over a critical period of the disease in:

Ulcerative colitis

Regional enteritis

## **12. Miscellaneous**

Tuberculous meningitis with subarachnoid block or impending block used concurrently with appropriate antituberculous chemotherapy. Trichinosis with neurologic or myocardial involvement.

In addition to the above indications, Prednisolone Oral Solution USP is indicated for systemic dermatomyositis (polymyositis).

## **CONTRAINDICATIONS**

Systemic fungal infections.

## **WARNINGS**

In patients on corticosteroid therapy subjected to unusual stress, increased dosage of rapidly acting corticosteroids before, during, and after the stressful situation is indicated.

### *Immunosuppression and Increased Risk of Infection*

Corticosteroids, including Prednisolone Oral Solution USP, suppress the immune system and increase the risk of infection with any pathogen, including viral, bacterial, fungal, protozoan, or helminthic pathogens. Corticosteroids can:

- Reduce resistance to new infections
- Exacerbate existing infections

- Increase the risk of disseminated infections
- Increase the risk of reactivation or exacerbation of latent infections
- Mask some signs of infection

Corticosteroid-associated infections can be mild but can be severe and at times fatal. The rate of infectious complications increases with increasing corticosteroid dosages.

Monitor for the development of infection and consider Prednisolone Oral Solution USP withdrawal or dosage reduction as needed.

Do not administer Prednisolone Oral Solution USP by an intraarticular, intrabursal, intratendinous, or intralesional route in the presence of acute local infection.

### *Tuberculosis*

Prednisolone Oral Solution USP is used to treat a condition in patients with latent tuberculosis or tuberculin reactivity, reactivation of tuberculosis may occur. Closely monitor such patients for reactivation. During prolonged Prednisolone Oral Solution USP therapy, patients with latent tuberculosis or tuberculin reactivity should receive chemoprophylaxis.

### *Varicella Zoster and Measles Viral Infections*

Varicella and measles can have a serious or even fatal course in non-immune patients taking corticosteroids, including Prednisolone Oral Solution USP. In corticosteroids-treated patients who have not had these diseases or are non-immune, particular care should be taken to avoid exposure to varicella and measles:

- If a Prednisolone Oral Solution USP-treated patient is exposed to varicella, prophylaxis with varicella zoster immune globulin may be indicated. If varicella develops, treatment with antiviral agents may be considered.
- If a Prednisolone Oral Solution USP-treated patient is exposed to measles, prophylaxis with immunoglobulin may be indicated.

### *Hepatitis B Virus Reactivation*

Hepatitis B Virus reactivation can occur in patients who are hepatitis B carriers treated with immunosuppressive dosages of corticosteroids, including Prednisolone Oral Solution USP. Reactivation can also occur infrequently in corticosteroid-treated patients who appear to have resolved hepatitis B infection.

Screen patients for hepatitis B infection before initiating immunosuppressive (e.g., prolonged) treatment with Prednisolone Oral Solution USP. For patients who show evidence of hepatitis B infection, recommend consultation with physicians with expertise in managing hepatitis B regarding and consideration for hepatitis B antiviral therapy.

### *Fungal Infections*

Corticosteroids, including Prednisolone Oral Solution USP, may exacerbate systemic fungal infections; therefore, avoid Prednisolone Oral Solution USP use in the presence of such infections unless Prednisolone Oral Solution USP is needed to control drug reactions. For patients on chronic Prednisolone Oral Solution USP therapy who develop systemic fungal infections, Prednisolone Oral Solution USP withdrawal or dosage reduction is recommended.

### *Amebiasis*

Corticosteroids, including Prednisolone Oral Solution USP, may activate latent amebiasis. Therefore, it is recommended that latent amebiasis or active amebiasis be ruled out before initiating Prednisolone Oral Solution USP in patients who have spent time in the tropics or patients with unexplained diarrhea.

#### *Strongyloides Infestation*

Corticosteroids, including Prednisolone Oral Solution USP, should be used with great care in patients with known or suspected *Strongyloides* (threadworm) infestation. In such patients, corticosteroid-induced immunosuppression may lead to *Strongyloides* hyperinfection and dissemination with widespread larval migration, often accompanied by severe enterocolitis and potentially fatal gram-negative septicemia.

#### *Cerebral Malaria*

Avoid corticosteroids, including Prednisolone Oral Solution USP, in patients with cerebral malaria.

#### *Kaposi's Sarcoma*

Kaposi's sarcoma has been reported to occur in patients receiving corticosteroid therapy, most often for chronic conditions. Discontinuation of corticosteroids may result in clinical improvement of Kaposi's sarcoma.

Prolonged use of corticosteroids may produce posterior subcapsular cataracts, glaucoma with possible damage to the optic nerves, and may enhance the establishment of secondary ocular infections due to fungi or viruses.

Average and large doses of hydrocortisone or cortisone can cause elevation of blood pressure, salt and water retention, and increased excretion of potassium. These effects are less likely to occur with the synthetic derivatives except when used in large doses. Dietary salt restriction and potassium supplementation may be necessary. All corticosteroids increase calcium excretion.

**While on corticosteroid therapy, patients should not be vaccinated against smallpox. Other immunization procedures should not be undertaken in patients who are on corticosteroids, especially on high dose, because of possible hazards of neurological complications and a lack of antibody response.**

*Use in Pregnancy:* Since adequate human reproduction studies have not been done with corticosteroids, the use of these drugs in pregnancy, nursing mothers, or women of childbearing potential requires that the possible benefits of the drug be weighed against the potential hazards to the mother and embryo or fetus. Infants born of mothers who have received substantial doses of corticosteroids during pregnancy should be carefully observed for signs of hypoadrenalism.

## **PRECAUTIONS**

### ***General:***

Drug-induced secondary adrenocortical insufficiency may be minimized by gradual reduction of dosage. This type of relative insufficiency may persist for months after discontinuation of therapy; therefore, in any situation of stress occurring during that

period, hormone therapy should be reinstated.

Since mineralocorticoid secretion may be impaired, salt and/or a mineralocorticoid should be administered concurrently.

There is an enhanced effect of corticosteroids on patients with hypothyroidism and in those with cirrhosis.

Corticosteroids should be used cautiously in patients with ocular herpes simplex because of possible corneal perforation.

The lowest possible dose of corticosteroid should be used to control the condition under treatment, and when reduction in dosage is possible, the reduction should be gradual.

Psychic derangements may appear when corticosteroids are used, ranging from euphoria, insomnia, mood swings, personality changes, and severe depression, to frank psychotic manifestations. Also, existing emotional instability or psychotic tendencies may be aggravated by corticosteroids. Aspirin should be used cautiously in conjunction with corticosteroids in hypoprothrombinemia. Steroids should be used with caution in nonspecific ulcerative colitis if there is a probability of impending perforation, abscess or other pyogenic infections; diverticulitis; fresh intestinal anastomoses; active or latent peptic ulcer; renal insufficiency; hypertension; osteoporosis; and myasthenia gravis. Growth and development of infants and children on prolonged corticosteroid therapy should be carefully observed.

### ***Information for Patients:***

Patients who are on immunosuppressant doses of corticosteroids should be warned to avoid exposure to chickenpox or measles. Patients should also be advised that if they are exposed, medical advice should be sought without delay.

## **ADVERSE REACTIONS**

### **Fluid and Electrolyte Disturbances**

- Sodium retention
- Fluid retention
- Congestive heart failure in susceptible patients
- Potassium loss
- Hypokalemic alkalosis
- Hypertension

### **Musculoskeletal**

- Muscle weakness
- Steroid myopathy
- Loss of muscle mass
- Osteoporosis
- Vertebral compression fractures

Aseptic necrosis of femoral and humeral heads

Pathologic fracture of long bones

### **Gastrointestinal**

Peptic ulcer with possible perforation and hemorrhage

Pancreatitis

Abdominal distention

Ulcerative esophagitis

### **Dermatologic**

Impaired wound healing

Thin fragile skin

Petechiae and ecchymoses

Facial erythema

Increased sweating

May suppress reactions to skin tests

### **Neurological**

Convulsions

Increased intracranial pressure with papilledema (pseudo-tumor cerebri) usually after

treatment

Vertigo

Headache

### **Endocrine**

Menstrual irregularities

Development of Cushingoid state

Suppression of growth in pediatric patients

Secondary adrenocortical and pituitary unresponsiveness, particularly in times of stress, as in

trauma, surgery, or illness

Decreased carbohydrate tolerance

Manifestations of latent diabetes mellitus

Increased requirements for insulin or oral hypoglycemic agents in diabetics

### **Ophthalmic**

Posterior subcapsular cataracts

Increased intraocular pressure

Glaucoma

Exophthalmos

### **Metabolic**

Negative nitrogen balance due to protein catabolism

To report SUSPECTED ADVERSE REACTIONS, contact PAI Pharma at 1-800-845-8210 or FDA at 1-800-FDA-1088 or [www.fda.gov/medwatch](http://www.fda.gov/medwatch).

### **DOSAGE AND ADMINISTRATION**

Dosage of prednisolone oral solution should be individualized according to the severity of the disease and the response of the patient. For infants and children, the recommended dosage should be governed by the same considerations rather than strict adherence to the ratio indicated by age or body weight.

Hormone therapy is an adjunct to and not a replacement for conventional therapy. Dosage should be decreased or discontinued gradually when the drug has been administered for more than a few days.

The severity, prognosis, expected duration of the disease, and the reaction of the patient to medication are primary factors in determining dosage. If a period of spontaneous remission occurs in a chronic condition, treatment should be discontinued.

Blood pressure, body weight, routine laboratory studies, including two-hour postprandial blood glucose and serum potassium, and a chest X-ray should be obtained at regular intervals during prolonged therapy. Upper GI X-rays are desirable in patients with known or suspected peptic ulcer disease.

The initial dosage of prednisolone oral solution may vary from 5 mg to 60 mg per day depending on the specific disease entity being treated. In situations of less severity, lower doses will generally suffice while in selected patients higher initial doses may be required. The initial dosage should be maintained or adjusted until a satisfactory response is noted. If after a reasonable period of time there is a lack of satisfactory clinical response, prednisolone oral solution should be discontinued and the patient transferred to other appropriate therapy. **IT SHOULD BE EMPHASIZED THAT DOSAGE REQUIREMENTS ARE VARIABLE AND MUST BE INDIVIDUALIZED ON THE BASIS OF THE DISEASE UNDER TREATMENT AND THE RESPONSE OF THE PATIENT.**

After a favorable response is noted, the proper maintenance dosage should be determined by decreasing the initial drug dosage in small decrements at appropriate time intervals until the lowest dosage which will maintain an adequate clinical response is reached. It should be kept in mind that constant monitoring is needed in regard to drug dosage. Included in the situations which may make dosage adjustments necessary are changes in clinical status secondary to remissions or exacerbations in the disease process, the patient's individual drug responsiveness, and the effect of patient exposure to stressful situations not directly related to the disease entity under treatment. In this latter situation it may be necessary to increase the dosage of prednisolone oral solution for a period of time consistent with the patient's condition. If after long-term therapy the drug is to be stopped, it is recommended that it be withdrawn gradually rather than

abruptly.

## HOW SUPPLIED

**Prednisolone Oral Solution USP, 15 mg/5 mL** is a clear, pink to red liquid containing 15 mg of Prednisolone in each 5 mL (teaspoonful) and is supplied as

NDC 0121-0885-08: 240 mL bottles

NDC 0121-0885-16: 480 mL bottles

**Pharmacist:** Dispense **Prednisolone Oral Solution USP, 15 mg/5 mL** with a suitable calibrated measuring device to assure proper measuring of dose.

### Dose/Volume Chart

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15 mg prednisolone	=	1 teaspoon
10 mg prednisolone	=	$\frac{2}{3}$ teaspoon
7.5 mg prednisolone	=	$\frac{1}{2}$ teaspoon
5 mg prednisolone	=	$\frac{1}{3}$ teaspoon

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Dispense in tight, light-resistant and child-resistant containers as defined in the USP/NF.

**Store at 20° to 25°C (68° to 77°F) [See USP Controlled Room Temperature].  
DO NOT REFRIGERATE.**

**Manufactured by:**



Greenville, SC 29605

R02/24

**PRINCIPAL DISPLAY PANEL - 240 mL Bottle**

**NDC 0121-0885-08**

**PrednisoLONE**

**Oral Solution, USP**

**15 mg / 5 mL**

**Rx Only**

**240 mL**

**PAI Pharma**

NDC 0121-0885-08

**PrednisoLONE**  
**Oral Solution, USP**

**15 mg / 5 mL**

Rx Only

240 mL

**PAI Pharma**

**USUAL DOSAGE:** See accompanying package insert for full Prescribing Information.

**DESCRIPTION:** PrednisoLONE Oral Solution USP contains 15 mg of Prednisolone in each 5 mL (teaspoonful). Benzoic acid 0.1% added as a preservative. Also alcohol, 5% (v/v).

KEEP THIS AND ALL DRUGS OUT OF THE REACH OF CHILDREN.

Dispense in tight, light-resistant and child-resistant containers as defined in the USP.

**PHARMACIST:** Dispense with a suitable Calibrated Measuring Device.

Store at 20° to 25°C (68° to 77°F) [see USP Controlled Room Temperature].  
**DO NOT REFRIGERATE.**

**Manufactured by:**  
PAI Pharma  
Greenville, SC 29605

X0885080623  
R06/23

**PRINCIPAL DISPLAY PANEL - 480 mL Bottle**

**NDC 0121-0885-16**

**PrednisoLONE**

**Oral Solution, USP**

**15 mg / 5 mL**

**Rx Only**

**480 mL**

**PAI Pharma**

NDC 0121-0885-16

**PrednisoLONE  
Oral Solution, USP**

**15 mg / 5 mL**



X0885160623  
R06/23



N 3

Rx Only

480 mL



**USUAL DOSAGE:** See accompanying package insert for full Prescribing Information.

**DESCRIPTION:** PrednisoLONE Oral Solution USP contains 15 mg of Prednisolone in each 5 mL (teaspoonful). Benzoic acid 0.1% added as a preservative. Also alcohol, 5% (v/v).

**KEEP THIS AND ALL DRUGS OUT OF THE REACH OF CHILDREN.**

Dispense in tight, light-resistant and child-resistant containers as defined in the USP.

**PHARMACIST:** Dispense with a suitable Calibrated Measuring Device.

**Store at 20° to 25°C (68° to 77°F) [see USP Controlled Room Temperature].  
DO NOT REFRIGERATE.**

**Manufactured by:**  
PAI Pharma  
Greenville, SC 29605

## PREDNISOLONE

prednisolone solution

### Product Information

<b>Product Type</b>	HUMAN PRESCRIPTION DRUG	<b>Item Code (Source)</b>	NDC:0121-0885
<b>Route of Administration</b>	ORAL		

### Active Ingredient/Active Moiety

Ingredient Name	Basis of Strength	Strength
<b>PREDNISOLONE</b> (UNII: 9PHQ9Y1OLM) (PREDNISOLONE - UNII:9PHQ9Y1OLM)	PREDNISOLONE	15 mg in 5 mL

### Inactive Ingredients

Ingredient Name	Strength
<b>BENZOIC ACID</b> (UNII: 8SKN0B0MIM)	
<b>ALCOHOL</b> (UNII: 3K9958V90M)	
<b>ANHYDROUS CITRIC ACID</b> (UNII: XF417D3PSL)	
<b>EDETATE DISODIUM</b> (UNII: 7FLD91C86K)	
<b>GLYCERIN</b> (UNII: PDC6A3C0OX)	
<b>PROPYLENE GLYCOL</b> (UNII: 6DC9Q167V3)	
<b>WATER</b> (UNII: 059QF0KO0R)	
<b>SACCHARIN SODIUM</b> (UNII: SB8ZUX40TY)	
<b>SUCROSE</b> (UNII: C151H8M554)	
<b>FD&amp;C BLUE NO. 1</b> (UNII: H3R47K3TBD)	

FD&C RED NO. 40 (UNII: WZB9127XOA)

### Product Characteristics

Color	pink (clear pink to red)	Score	
Shape		Size	
Flavor		Imprint Code	
Contains			

### Packaging

#	Item Code	Package Description	Marketing Start Date	Marketing End Date
1	NDC:0121-0885-08	240 mL in 1 BOTTLE; Type 0: Not a Combination Product	09/12/2023	
2	NDC:0121-0885-16	480 mL in 1 BOTTLE; Type 0: Not a Combination Product	09/12/2023	

### Marketing Information

Marketing Category	Application Number or Monograph Citation	Marketing Start Date	Marketing End Date
ANDA	ANDA040571	09/12/2023	

**Labeler** - PAI Holdings, LLC dba PAI Pharma (044940096)

### Establishment

Name	Address	ID/FEI	Business Operations
PAI Holdings, LLC dba Pharmaceutical Associates, Inc. and dba PAI Pharma		044940096	analysis(0121-0885) , label(0121-0885) , manufacture(0121-0885) , pack(0121-0885)

Revised: 8/2024

PAI Holdings, LLC dba PAI Pharma