**Summary of Product Characteristics for Pharmaceutical Products**

## 1. Name of the medicinal product:

DEXNEO 8mg/2mL

## 2. Qualitative and quantitative composition

Each ml contains Dexamethasone Sodium Phosphate USP equivalent to Dexamethasone 4 mg

For a full list of excipients, see section 6.1

## 3. Pharmaceutical form

Solution for injection
A clear, almost colourless solution.

## 4. Clinical particulars

### 4.1 Therapeutic indications

Dexamethasone can be used for all forms of general and local glucocorticoid injection therapy and all acute conditions in which intravenous glucocorticoids may be life-saving.

*Endocrine Disorders*

- Primary or secondary adrenocortical insufficiency (hydrocortisone or cortisone is the drug of choice; synthetic analogs may be used in conjunction with mineralocorticoids where applicable; in infancy, mineralocorticoid supplementation is of particular importance).
- Acute adrenocortical insufficiency (hydrocortisone or cortisone is the drug of choice; mineralocorticoid supplementation may be necessary, particularly when synthetic analogs are used).
- Preoperatively, and in the event of serious trauma or illness, in patients with known adrenal insufficiency or when adrenocortical reserve is doubtful.
- Shock unresponsive to conventional therapy if adrenocortical insufficiency exists or is suspected.
- Congenital adrenal hyperplasia
- Nonsuppurative thyroiditis Hypercalcemia associated with cancer

*Rheumatic Disorders*

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

- Post-traumatic osteoarthritis
- Synovitis of osteoarthritis
- Rheumatoid arthritis, including juvenile rheumatoid arthritis (selected cases may require lowdose maintenance therapy).
- Acute and subacute bursitis
- Epicondylitis

- Acute nonspecific tenosynovitis
- Acute gouty arthritis
- Psoriatic arthritis
- Ankylosing spondylitis

*Collagen Diseases*
- During an exacerbation or as maintenance therapy in selected cases of:
- Systemic lupus erythematosus
- Acute rheumatic carditis

*Dermatologic Diseases*
- Pemphigus
- Severe erythema multiforme (Stevens-Johnson syndrome)
- Exfoliative dermatitis
- Bullous dermatitis herpetiformis
- Severe seborrheic dermatitis
- Severe psoriasis
- Mycosis fungoides

*Allergic States*
Control of severe or incapacitating allergic conditions intractable to adequate trials of conventional treatment in:
- Bronchial asthma
- Contact dermatitis
- Atopic dermatitis
- Serum sickness
- Seasonal or perennial allergic rhinitis
- Drug hypersensitivity reactions
- Urticarial transfusion reactions
- Acute noninfectious laryngeal edema (epinephrine is the drug of first choice).

*Ophthalmic Diseases*
Severe acute and chronic allergic and inflammatory processes involving the eye, such as:
- Herpes zoster ophthalmicus
- iridocyclitis
- Chorioretinitis
- Diffuse posterior uveitis and choroiditis
- Optic neuritis
- Sympathetic ophthalmia
- Anterior segment inflammation
- Allergic conjunctivitis

- Keratitis
- Allergic corneal marginal ulcers

*Gastrointestinal Diseases*
To tide the patient over a critical period of the disease in:
- Ulcerative colitis (systemic therapy)
- Regional enteritis (systemic therapy)

## 4.2 Posology and method of administration

**N.B. For this section of document all doses are expressed as mg Dexamethasone:**
In general, glucocorticoid dosage depends on the severity of the condition and response of the patient. Under certain circumstances, for instance in stress, extra dosage adjustments may be necessary. If no favorable response is noted within a couple of days, glucocorticoid therapy should be discontinued.
**Adults and Elderly:**
Once the disease is under control the dosage should be reduced or tapered off to the lowest suitable level under continuous monitoring and observation of the patient.
For acute life-threatening situations (e.g. anaphylaxis, acute severe asthma) substantially higher dosages may be needed. Cerebral oedema (adults): initial dose 8-16 mg IV followed by 5 mg IV or IM every 6 hours, until a satisfactory result has been obtained. In brain surgery these dosages may be necessary until several days after the operation. Thereafter, the dosage has to be tapered off gradually. Increase of intracranial pressure associated with brain tumours can be counteracted by continuous treatment.
For local treatment, the following dosages can be recommended:

| | |
|---|---|
| Intra-articularly: | 1.6-3 mg large joints<br>0.6-0.8 mg small joints |
| Intrabursally: | 1.6-3 mg; |
| In tendon sheaths: | 0.3-0.8 mg |

The frequency of these injections may vary from every 3-5 days to every 2-3 weeks.
For rectal drip in cases of ulcerative colitis: 4 mg diluted in 120 ml saline.
**Suggested doses for children:**
Dosage requirements are variable and may have to be changed according to individual needs.
Usually 0.2 mg/kg to 0.4 mg/kg of body weight daily.
**Administrations:**
Dexamethasone injections may be administered intravenously, intramuscularly, by local injection or as a rectal drip. For administration by intravenous infusion: use with sodium chloride 0.9%, glucose 5% infusion

fluids. With intravenous administration high plasma levels can be obtained rapidly. Rapid intravenous injection of massive doses of glucocorticoids may sometimes cause cardiovascular collapse; the injection should therefore be given slowly over a period of several minutes. Intra-articular injections should be given under strictly aseptic conditions.

## 4.3 Contraindications

Systemic infection unless specific anti-infective therapy is employed.
Local injection of a glucocorticoid is contraindicated in bacteremia and systemic fungal infections, unstable joints, infection at the injection site e.g. septic arthritis resulting from gonorrhoea or tuberculosis.

Hypersensitivity to the active substance or to any of the excipients listed in section 6.1 including sulfites

## 4.4 Special warnings and precautions for use

In post-marketing experience tumour lysis syndrome (TLS) has been reported very rarely in patients with haematological malignancies following the use of Dexamethasone alone or in combination with other chemotherapeutic agents. Patients at high risk of TLS should be monitored closely and appropriate precautions taken.
Patients and/or carers should be warned that potentially severe psychiatric adverse reactions may occur with systemic steroids. Symptoms typically emerge within a few days or weeks of starting the treatment. Risks may be higher with high doses/systemic exposure, although dose levels do not allow prediction of the onset, type severity or duration of reactions. Most reactions recover after either dose reduction or withdrawal, although specific treatment may be necessary. Patients/carers should be encouraged to seek medical advice if worrying psychological symptoms develop, especially if depressed mood or suicidal ideation is suspected. Patients/carers should also be alert to possible psychiatric disturbances that may occur either during or immediately after dose tapering/withdrawal of systemic steroids, although such reactions have been reported infrequently.
Particular care is required when considering the use of systemic corticosteroids in patients with existing or previous history of severe affective disorders in themselves or in their first degree relatives. These would include depressive or manic-depressive illness and previous steroid psychosis.
Undesirable effects may be minimised by using the lowest effective dose for the minimum period, and by administering the daily requirement as a single morning dose or whenever possible as a single morning dose on alternative days. Frequent patient review is required to appropriately

titrate the dose against disease activity.
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After parenteral administration of glucocorticoids serious anaphylactoid reactions, such as glottis oedema, urticaria and bronchospasm, have occasionally occurred, particularly in patients with a history of allergy. If such an anaphylactoid reaction occurs, the following measures are recommended: immediate slow intravenous injection of 0.1-0.5 ml of adrenaline (solution of 1:1000: 0.1-0.5 mg adrenaline dependent on body weight), intravenous administration of aminophylline and artificial respiration if necessary.
Steroids should be used with caution in nonspecific ulcerative colitis, if there is a probability of impending perforation, abscess, or other pyogenic infection, also in diverticulitis, fresh intestinal anastomoses, active or latent peptic ulcer, renal insufficiency, hypertension, osteoporosis and myasthenia gravis. Signs of peritoneal irritation following gastrointestinal perforation in patients receiving large doses of corticosteroids may be minimal or absent. Fat embolism has been reported as a possible complication of hypercortisonism.
Corticosteroids should not be used for the management of head injury or stroke because it is unlikely to be of any benefit and may even be harmful.
The results of a randomised, placebo-controlled study suggest an increase in mortality if methylprednisolone therapy starts more than two weeks after the onset of Acute Respiratory Distress Syndrome (ARDS). Therefore, treatment of ARDS with corticosteroids should be initiated within the first two weeks of onset of ARDS.
**Preterm neonates:** Available evidence suggests long-term neurodevelopmental adverse events after early treatment (<96 hours) of premature infants with chronic lung disease at starting doses of 0.25 mg/kg twice daily.
**Dexamethasone withdrawal:**
Adrenal cortical atrophy develops during prolonged therapy and may persist for years after stopping treatment. Withdrawal of corticosteroids after prolonged therapy must therefore always be gradual to avoid acute adrenal insufficiency, being tapered off over weeks or months according to the dose and duration of treatment.
In patients who have received more than physiological doses of systemic corticosteroids (approximately 1 mg Dexamethasone) for greater than 3 weeks, withdrawal should not be abrupt. How dose reduction should be carried out depends largely on whether the disease is likely to relapse as the dose of systemic corticosteroids is reduced. Clinical assessment of disease activity may be needed during withdrawal. If the disease is

unlikely to relapse on withdrawal of systemic corticosteroids but there is uncertainty about HPA suppression, the dose of systemic corticosteroid may be reduced rapidly to physiological doses. Once a daily dose of 1 mg Dexamethasone is reached, dose reduction should be slower to allow the HPAaxis to recover.

Abrupt withdrawal of systemic corticosteroid treatment, which has continued up to 3 weeks is appropriate if it is considered that the disease is unlikely to relapse. Abrupt withdrawal of doses of up to 6 mg daily of Dexamethasone for 3 weeks is unlikely to lead to clinically relevant HPA-axis suppression in the majority of patients. In the following patient groups, gradual withdrawal of systemic corticosteroid therapy should be considered even after courses lasting 3 weeks or less:

- Patients who have had repeated courses of systemic corticosteroids, particularly if taken for greater than 3 weeks.
- When a short course has been prescribed within one year of cessation of long-term therapy (months or years).
- Patients who may have reasons for adrenocortical insufficiency other than exogenous corticosteroid therapy.
- Patients receiving doses of systemic corticosteroid greater than 6mg daily of Dexamethasone.
- Patients repeatedly taking doses in the evening.

During prolonged therapy any intercurrent illness, trauma or surgical procedure will require a temporary increase in dosage; if corticosteroids have been stopped following prolonged therapy they may need to be temporarily re-introduced.

Patients should carry 'Steroid treatment' cards which give clear guidance on the precautions to be taken to minimise risk and which provide details of prescriber, drug, dosage and the duration of treatment.

**Anti-inflammatory/Immunosuppressive effects and Infection.**

Suppression of the inflammatory response and immune function increases the susceptibility to infections and their severity. The clinical presentation may often be atypical, and serious infections such as septicaemia and tuberculosis may be masked and may reach an advanced stage before being recognised.

Appropriate antimicrobial therapy should accompany glucocorticoid therapy when necessary e.g. in tuberculosis and viral and fungal infections of the eye.

Chickenpox is of particular concern since this normally minor illness may be fatal in immunosuppressed patients. Patients (or parents of children) without a definite history of chickenpox should be advised to avoid close personal contact with chickenpox or herpes zoster and if exposed they should seek urgent medical attention. Passive immunisation with varicella zoster immunoglobulin (VZIG) is needed by exposed non-immune patients who are receiving systemic

corticosteroids or who have used them within the previous 3 months; this should be given within 10 days of exposure to chickenpox. If a diagnosis of chickenpox is confirmed, the illness warrants specialist care and urgent treatment. Corticosteroids should not be stopped and the dose may need to be increased.
Measles. Patients should be advised to take particular care to avoid exposure to measles and to seek immediate medical advice if exposure occurs; prophylaxis with intramuscular normal immunoglobin may be needed.
Live vaccines should not be given to individuals with impaired immune responsiveness. The antibody response to other vaccines may be diminished.

**Precautions:**
Particular care is required when considering the use of systemic corticosteroids in patients with the following conditions and frequent patient monitoring is necessary.

a. Osteoporosis (post-menopausal females are particularly at risk).
b. Hypertension or congestive heart failure.
c. Existing or previous history of severe affective disorders (especially previous steroid psychosis).
d. Diabetes mellitus (or a family history of diabetes).
e. History of tuberculosis, since glucocorticoids may induce reactivation.
f. Glaucoma (or a family history of glaucoma).
g. Previous corticosteroid-induced myopathy.
h. Liver failure.
I. Renal insufficiency.
j. Epilepsy.
k. Castro-intestinal ulceration.
I. Migraine.
m. Certain parasitic infestations in particular amoebiasis.
n. Incomplete statural growth since glucocorticoids on prolonged administration may accelerate epiphyseal closure.
o. Patients with Cushing's syndrome.

In the treatment of conditions such as tendinitis or tenosynovitis care should be taken to inject into the space between the tendon sheath and the tendon as cases of ruptured tendon have been reported.

**Use in children:**
Corticosteroids cause dose-related growth retardation in infancy, childhood and adolescence, which may be irreversible.
Dexamethasone has been used 'off label' to treat and prevent chronic lung disease in preterm infants. Clinical trials have shown a short term benefit in reducing ventilator dependence but no long term benefit in reducing time to discharge, the incidence of chronic lung disease or mortality. Recent trials have suggested an association between the use

of Dexamethasone in preterm infants and the development of cerebral palsy. In view of this possible safety concern, an assessment of the risk:benefit should be made on an individual patient basis.

**Use in the Elderly:**

The common adverse effects of systemic corticosteroids may be associated with more serious consequences in old age, especially osteoporosis, hypertension, hypokalaemia, diabetes, susceptibility to infection and thinning of the skin. Close clinical supervision is required to avoid life-threatening reactions.

## 4.5 Interaction with other medicinal products and other forms of interaction

Rifampicin, Rifabutin, Ephedrine, Carbamazepine, Phenylbutazone, Phenobarbital, Phenytoin, Primidone, and Amino-glutethimide enhance the metabolism of corticosteroids and its therapeutic effects may be reduced.

The effects of anticholinesterases are antagonised by corticosteroids in myasthenia gravis.

The desired effects of hypoglycaemic agents (including insulin), anti-hypertensives, cardiac glycosides and diuretics are antagonised by corticosteroids, and the hypokalaemic effects of acetazolamide, loop diuretics, thiazide diuretics and carbenoxolone are enhanced.

The efficacy of coumarin anticoagulants may be enhanced by concurrent corticosteroid therapy and close monitoring of the INR or prothrombin time is required to avoid spontaneous bleeding. The renal clearance of salicylates is increased by corticosteroids and steroid withdrawal may result in salicylate intoxication. There may be interaction with salicylates in patients with hypoprothrombinaemia.

## 4.6 Pregnancy and Lactation

The ability of corticosteroids to cross the placenta varies between individual drugs, however, Dexamethasone readily crosses the placenta. Administration of corticosteroids to pregnant animals can cause abnormalities of foetal development including cleft palate, intra-uterine growth retardation and affects on brain growth and development. There is no evidence that corticosteroids result in an increased incidence of congenital abnormalities, such as cleft palate/lip in man. However, when administered for prolonged periods or repeatedly during pregnancy, corticosteroids may increase the risk of intrauterine growth retardation. Hypoadrenalism may, in theory, occur in the neonate following prenatal exposure to corticosteroids but usually resolves spontaneously following birth and is rarely clinically important. As with all drugs, corticosteroids should only be prescribed when the benefits to the mother and child outweigh the risks. When corticosteroids are essential however, patients

with normal pregnancies may be treated as though they were in the nongravid state.

**Lactation:**

Corticosteroids may pass into breast milk, although no data are available for Dexamethasone. Infants of mothers taking high doses of systemic corticosteroids for prolonged periods may have a degree of adrenal suppression.

## 4.7 Effects on ability to drive and use machines

None known

## 4.8 Undesirable effects

Local adverse reactions include post-injection flare, and a painless destruction of the joint reminiscent of Charcots arthropathy especially with repeated intra-articular injection. The incidence of predictable undesirable effects, including hypothalamic-pituitary-adrenal suppression correlates with the relative potency of the drug, dosage, timing of administration and the duration of treatment. Cases of ruptured tendon have been reported.

Local injection of glucocorticoid may produce systemic effects.

**Endocrine/metabolic:**

Suppression of the hypothalamic-pituitary-adrenal axis, premature epiphyseal closure, growth suppression in infancy, childhood and adolescence, menstrual irregularity and amenorrhoea. Cushingoid faces, hirsutism, weight gain, impaired carbohydrate tolerance with increased requirement for anti-diabetic therapy. Negative protein and calcium balance. Increased appetite.

**Anti-inflammatory and Immunosuppressive effects:**

Increased susceptibility and severity of infections with suppression of clinical symptoms and signs. Diminished lymphoid tissue and immune response. Opportunistic infections, recurrence of dormant tuberculosis and decreased responsiveness to vaccination and skin tests.

Musculoskeletal:

Osteoporosis, vertebral and long bone fractures, avascular osteonecrosis, tendon rupture, Proximal myopathy.

**Fluid and electrolyte disturbance:**

Sodium and water retention, hypertension, potassium loss, hypokalaemic alkalosis.

**Neuropsychiatric:**

A wide range of psychiatric reactions including affective disorders (such as irritable, euphoric, depressed and labile mood, and suicidal thoughts), psychotic reactions (including mania, delusions, hallucinations, and aggravation of schizophrenia), behavioural disturbances, irritability, anxiety, sleep disturbances, and cognitive dysfunction including confusion

and amnesia have been reported. Reactions are common and may occur in both adults and children. In adults, the frequency of severe reactions has been estimated to be 5-6%. Psychological effects have been reported on withdrawal of corticosteroids; the frequency is unknown.
Increased intracranial pressure with papilledema in children (Pseudotumor cerebri), usually after treatment withdrawal. Aggravation of epilepsy. Psychological dependence.

**Ophthalmic:**
Increased intraocular pressure, glaucoma, papilledema, posterior subcapsular cataracts, corneal or scleral thinning, and exacerbation of ophthalmic viral or fungal diseases.
**Gastrointestinal:**
Dyspepsia, peptic ulceration with perforation and haemorrhage, acute pancreatitis, candidiasis.
**Dermatological:**
Impaired healing, skin atrophy, bruising, telangiectasia, stria, increased sweating and acne.
**General:**
Hypersensitivity including anaphylaxis has been reported. Leucocytosis. Thromboembolism.
A transient burning or tingling sensation mainly in the perineal area following intravenous injection of large doses of corticosteroid phosphates.

Reporting suspected adverse reactions after authorisation of the medicinal product is important. It allows continued monitoring of the benefit/risk balance of the medicinal product. Healthcare professionals are asked to report any suspected adverse reactions via pharmacy and poison board, Pharmacovigilance Electronic Reporting System (PvERS) https://pv.pharmacyboardkenya.org.

## 4.9 Overdose

It is difficult to define an excessive dose of a corticosteroid as the therapeutic dose will vary according to the indication and patient requirements. Massive i.v. corticosteroid doses given as a pulse in emergencies are relatively free from hazardous effects.
Exaggeration of corticosteroid related adverse effects may occur.
Treatment should be asymptomatic and supportive as necessary.
Reports of acute toxicity and/or death following over dosage of glucocorticoids are rare. The oral LD50 of Dexamethasone in female mice was 6.5 g/kg. The intravenous LD50 of Dexamethasone sodium phosphate in female mice was 794 mg/kg.
**Treatment of over dosage:** Anaphylactic and hypersensitivity reactions may be treated with adrenaline, positive pressure artificial respiration and aminophylline, the patients should be kept warm and quiet.

## 5. Pharmacological properties

### 5.1 Pharmacodynamic properties

Dexamethasone is a synthetic adrenocorticoid with approximately a 7 times higher anti-inflammatory potency than prednisolone and 30 times that of hydrocortisone. Adrenocorticoids act on the HPA at specific receptors on the plasma membrane. On other tissues the adrenocorticoids diffuse across cell membranes and complex with specific cytoplasmic receptors which enter the cell nucleus and stimulate protein synthesis. Adrenocorticoids have anti-allergic, antitoxic, antishock, antipyretic and immunosuppressive properties. Dexamethasone has only minor mineralocorticoid activities and does therefore, not induce water and sodium retention.

### 5.2 Pharmacokinetic properties

After administration of Dexamethasone Injection, Dexamethasone sodium phosphate is rapidly hydrolysed to Dexamethasone. After an IV dose of 20 mg Dexamethasone plasma levels peak within 5 minutes. Dexamethasone is bound (up to 77%) by plasma proteins, mainly albumin. There is a high uptake of Dexamethasone by the liver, kidney and adrenal glands. Metabolism in the liver is slow and excretion is mainly in the urine, largely as unconjugated steroids. The plasma half life is 3.5-4.5 hours but as the effects outlast the significant plasma concentrations of steroids the plasma half-life is of little relevance and the use of biological half life is more applicable. The biological half life of Dexamethasone is 36-54 hours, therefore Dexamethasone is especially suitable in conditions where continuous glucocorticoid action is desirable.

### 5.3 Preclinical safety data

In animal studies, cleft palate was observed in rats, mice, hamsters, rabbits, dogs and primates; not in horses and sheep. In some cases these divergences were combined with defects of the central nervous system and of the heart. In primates effects in the brain were seen after exposure.
Moreover, intra-uterine growth can be delayed. All these effects were seen at high dosages.

## 6. Pharmaceutical Particulars

### 6.1 List of Excipients

Methyl Paraben BP
Propyl Paraben BP
EDTA Di-Sodium BP

Sodium Citrate BP
Sodium Metabisulphite BP
Sodium Hydroxide BP
Water for Injections BP

**6.2 Incompatibilities**

Dexamethasone sodium phosphate is physically incompatible with daunorubicin, doxorubicin and vancomycin and should not be admixed with solutions containing these drugs. Also incompatible with doxapram HCl and glycopyrrolate in syringe.

**6.3 Shelf-Life**

2 Years

**6.4 Special Precautions for storage**

Store below 30°C. Protect from light.
The solution should only be used if it is clear.
Keep the medicine out of reach of children.

**6.5 Nature and Content of container**

2 mL amber coloured, USP Type I (OPC) Ampoules with red dot, such 10 Ampoules to be packed in a printed carton along with insert literature.

**6.6 Special precautions for disposal and other handling**

*Use with infusion fluids*
Dexamethasone can be diluted with the following infusion fluids:

- sodium chloride 0.9%
- anhydrous glucose 5%
- invert sugar 10%
- sorbitol 5%
- ringer's solution
- ringer-lactate
- dextran 40 10%w/v

Using these infusion fluids, Dexamethasone Injection can also be injected into the infusion line without causing precipitation of the ingredients.
Direct injection into the infusion line is also possible with mannitol 10%.
For single use only.
Discard any unused contents. Any unused medicinal product or waste material should be disposed of in accordance with local requirements.

**7. Marketing Authorization Holder**

UMEDICA LABORATORIES PVT LTD.

**8. Marketing Authorization Number**

CTD8469

**9. Date of first authorization/renewal of the authorization**

17/02/2023

**10. Date of revision of the text**

05/05/2025