

## SUMMARY OF PRODUCT CHARACTERISTICS (SmPC)

### 1. NAME OF THE MEDICINAL PRODUCT

PROXIMEXA 125MG AND 250MG SUSPENSION

ZINNAT 125MG SUSPENSION

### 2. QUALITATIVE AND QUANTITATIVE COMPOSITION

Proximexa/ Zinnat 125mg and Proximexa 250mg suspension contain granules of cefuroxime (as cefuroxime axetil) for oral suspension.

For a full list of excipients, see Section 6.1.

### 3. PHARMACEUTICAL form

Dry, white to off-white, tutti-frutti flavoured granules for oral suspension.

### 4. Clinical particulars

#### 4.1 Therapeutic indications

Proximexa/ Zinnat is an oral prodrug of the bactericidal cephalosporin antibiotic cefuroxime, which is resistant to most  $\beta$ (beta)-lactamases and is active against a wide range of Gram-positive and Gram-negative organisms. It is indicated for the treatment of infections caused by susceptible bacteria. Susceptibility to Proximexa/ Zinnat will vary with geography and time and local susceptibility data should be consulted where available (See Pharmacological properties, Pharmacodynamics).

Indications include:

- upper respiratory tract infections for example, ear, nose and throat infections, such as otitis media, sinusitis, tonsillitis and pharyngitis
- lower respiratory tract infections for example, pneumonia and acute exacerbations of chronic bronchitis
- genito-urinary tract infections for example, pyelonephritis, cystitis and urethritis
- skin and soft tissue infections for example, furunculosis, pyoderma and impetigo
- gonorrhoea, acute uncomplicated gonococcal urethritis and cervicitis
- treatment of early Lyme disease and subsequent prevention of late Lyme disease.

#### 4.2 Posology and method of administration

The usual course of therapy is seven days (range 5 to 10 days).

For optimal absorption, Proximexa/ Zinnat should be taken after food.

- Adults

Indication	Dosage
Most infections	250 mg twice daily

Urinary tract infections	250 mg twice daily
Mild to moderate lower respiratory tract infections	250 mg twice daily
More severe lower respiratory tract infections, or if pneumonia is suspected	500 mg twice daily
Pyelonephritis	250 mg twice daily
Uncomplicated gonorrhoea	single dose of 1 g
Lyme disease in adults and children over the age of 12 years	500 mg twice daily for 14 days (range of 10-21 days)

- Children

There are no clinical trial data available on the use of Zinnat in children under the age of 3 months.

Indication	Dosage
Acute tonsillitis and pharyngitis	10 mg/kg twice daily to a maximum of 500 mg daily
Acute otitis media	15 mg/kg twice daily to a maximum of 1000 mg daily
Acute bacterial sinusitis	
Community acquired pneumonia	
Urinary tract infections	
Skin and soft tissue infections	
Lyme Disease in children under the age of 12 years	15 mg/kg twice daily to a maximum of 1000 mg daily for 14 days (range of 10 to 21 days)

The following two tables serve as a guideline for simplified administration from measuring spoons (5 ml) for the 125 mg/5 ml or the 250 mg/5 ml multi-dose suspension, and 125 mg or 250 mg single dose sachets.

#### 10 mg/kg dosage

Age	Weight range (kg)	Dose (mg) twice daily	No. of measuring spoons (5 ml) per dose	
			125mg	250mg
3 to 6 months	4 to 6	40 to 60	½	-
6 months to 2 years	6 to 12	60 to 120	½ to 1	-
2 to 12 years	12 to 25	120 to 250	1 to 2	½ to 1
	Greater than 25	250	2	1

#### 15 mg/kg dosage

Age	Weight range (kg)	Dose (mg) twice daily	No. of measuring spoons (5 ml) or per dose	
			125mg	250mg
3 to 6 months	4 to 6	60 to 90	½	-
6 months to 2 years	6 to 12	90 to 180	1 to 1½	½
2 to 12 years	12 to 16	180 to 240	1½ to 2	½ to 1
	16 to 32	240 to 480	2 to 4	1 to 2
	Greater than 32	500	4	2

Proximexa/ Zinnat is also available as the sodium salt (Zinacef) for parenteral administration. This permits parenteral therapy with Proximexa/ Zinnat to be followed by oral therapy in situations where a change from parenteral to oral treatment is clinically indicated.

#### • Renal impairment

Cefuroxime is primarily excreted by the kidneys. In patients with markedly impaired renal function it is recommended that the dosage of cefuroxime be reduced to compensate for its slower excretion (see the table below).

Creatinine Clearance	T 1/2 (hours)	Recommended Dosage
≥30 ml/min	1.4 - 2.4	No dose adjustment necessary standard dose of 125 mg to 500 mg given twice daily
10-29 ml/min	4.6	Standard individual dose given every 24 hours
<10 ml/ min	16.8	Standard individual dose given every 48 hours
During haemodialysis	2 – 4	A single additional standard individual dose should be given at the end of each dialysis

#### 4.3 Contraindications

Patients with known hypersensitivity to cephalosporin antibiotics.

#### 4.4 Special warnings and precautions for use

Special care is indicated in patients who have experienced an allergic reaction to penicillins or other beta-lactams.

As with other antibiotics, use of Proximexa/ Zinnat may result in the overgrowth of *Candida*. Prolonged use may also result in the overgrowth of other non-susceptible organisms (e.g. enterococci and *Clostridium difficile*), which may require interruption of treatment.

Pseudomembranous colitis has been reported with the use of antibiotics and may range in severity from mild to life-threatening. Therefore, it is important to consider its diagnosis in patients who develop diarrhoea during or after antibiotic use. If prolonged or significant diarrhoea occurs or the patient experiences abdominal cramps, treatment should be discontinued immediately, and the patient investigated further.

The sucrose content of Proximexa/ Zinnat suspension and granules (see List of Excipients) should be taken into account when treating diabetic patients, and appropriate advice provided.

The Jarisch-Herxheimer reaction has been seen following Proximexa/ Zinnat treatment of Lyme disease. It results directly from the bactericidal activity of Proximexa/ Zinnat on the causative organism of Lyme disease, the spirochaete *Borrelia burgdorferi*. Patients should be reassured that this is a common and usually self-limiting consequence of antibiotic treatment of Lyme disease.

Proximexa/ Zinnat suspension contains aspartame, which is a source of phenylalanine and so should be used with caution in patients with phenylketonuria.

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

Drugs which reduce gastric acidity may result in a lower bioavailability of cefuroxime compared with that of the fasting state and tend to cancel the effect of enhanced absorption after food.

In common with other antibiotics, Proximexa/ Zinnat may affect the gut flora, leading to lower oestrogen reabsorption and reduced efficacy of combined oral contraceptives.

As a false negative result may occur in the ferricyanide test, it is recommended that either the glucose oxidase or hexokinase methods are used to determine blood/plasma glucose levels in patients receiving Proximexa/ Zinnat. This antibiotic does not interfere in the alkaline picrate assay for creatinine.

#### **4.6 Pregnancy and lactation**

There is no experimental evidence of embryopathic or teratogenic effects attributable to Proximexa/ Zinnat but, as with all drugs, it should be administered with caution during the early months of pregnancy.

Proximexa/ Zinnat is excreted in human milk, and consequently caution should be exercised when Proximexa/ Zinnat is administered to a nursing mother.

#### **4.7 Effects on ability to drive and use machines**

As this medicine may cause dizziness, patients should be warned to be cautious when driving or operating machinery.

#### **4.8 Undesirable effects**

Adverse drug reactions to Proximexa/ Zinnat are generally mild and transient in nature.

The frequency categories assigned to the adverse reactions below are estimates, as for most reactions suitable data (for example from placebo-controlled studies) for calculating incidence were not available. In addition, the incidence of adverse reactions associated with Proximexa/ Zinnat may vary according to the indication.

Data from large clinical studies were used to determine the frequency of very common to rare undesirable effects. The frequencies assigned to all other undesirable effects (i.e. those occurring at

<1/1000) were mainly determined using post-marketing data and refer to a reporting rate rather than true frequency. Placebo-controlled trial data were not available. Where incidences have been calculated from clinical trial data, these were based on drug-related (investigator assessed) data.

The following convention has been used for the classification of frequency:

very common  $\geq 1/10$   
common  $\geq 1/100$  to  $< 1/10$   
uncommon  $\geq 1/1000$  to  $< 1/100$   
rare  $\geq 1/10,000$  to  $< 1/1000$   
very rare  $< 1/10,000$

### **Infections and infestations**

Common: Overgrowth of *Candida*

### **Blood and lymphatic system disorders**

Common: Eosinophilia

Uncommon: Positive Coombs' test, thrombocytopenia, leucopenia (sometimes profound)

Very rare: Haemolytic anaemia

Cephalosporins as a class tend to be absorbed onto the surface of red cells membranes and react with antibodies directed against the drug to produce a positive Coombs' test (which can interfere with cross-matching of blood) and very rarely haemolytic anaemia.

### **Immune system disorders**

Hypersensitivity reactions including:

Uncommon: Skin rashes

Rare: Urticaria, pruritus

Very rare: Drug fever, serum sickness, anaphylaxis

### **Nervous system disorders**

Common: Headache, dizziness

### **Gastrointestinal disorders**

Common: Gastrointestinal disturbances including diarrhoea, nausea, abdominal pain

Uncommon: Vomiting

Rare: Pseudomembranous colitis (See Warnings and Precautions)

### **Hepatobiliary disorders**

Common: Transient increases of hepatic enzyme levels, [ALT (SGPT), AST (SGOT), LDH]

Very rare: Jaundice (predominantly cholestatic), hepatitis

### **Skin and subcutaneous tissue disorders**

Very rare: Erythema multiforme, Stevens-Johnson syndrome, toxic epidermal necrolysis (exanthematic necrolysis)

## **4.9 Overdose**

Signs and symptoms

Overdosage of cephalosporins can cause cerebral irritation leading to convulsions.

Treatment

Serum levels of cefuroxime can be reduced by haemodialysis and peritoneal dialysis.

## 5. PHARMACOLOGICAL PROPERTIES

### 5.1 Pharmacodynamic properties

The prevalence of acquired resistance is geographically and time dependent and for select species may be very high. Local information on resistance is desirable, particularly when treating severe infections.

<b>In vitro susceptibility of micro-organisms to Cefuroxime</b>
Where clinical efficacy of cefuroxime axetil has been demonstrated in clinical trials this is indicated with an asterisk (*).
<b>Commonly Susceptible Species</b>
<u>Gram-Positive Aerobes:</u> <i>Staphylococcus aureus</i> (methicillin susceptible) * <i>Coagulase negative staphylococcus</i> (methicillin susceptible) <i>Streptococcus pyogenes</i> * Beta-hemolytic streptococci
<u>Gram-Negative Aerobes:</u> <i>Haemophilus influenzae</i> * including ampicillin resistant strains <i>Haemophilus parainfluenzae</i> * <i>Moraxella catarrhalis</i> * <i>Neisseria gonorrhoea</i> * including penicillinase and non-penicillinase producing strains
<u>Gram-Positive Anaerobes:</u> <i>Peptostreptococcus</i> spp. <i>Propionibacterium</i> spp.
<u>Spirochetes:</u> <i>Borrelia burgdorferi</i> *
<b>Organisms for which acquired resistance may be a problem</b>
<u>Gram-Positive Aerobes:</u> <i>Streptococcus pneumoniae</i> *
<u>Gram-Negative Aerobes:</u> <i>Citrobacter</i> spp. not including <i>C. freundii</i> <i>Enterobacter</i> spp. not including <i>E. aerogenes</i> and <i>E. cloacae</i> <i>Escherichia coli</i> *

*Klebsiella* spp. including *Klebsiella pneumoniae*\*

*Proteus mirabilis*

*Proteus* spp. not including *P. penneri* and *P. vulgaris*

*Providencia* spp.

Gram-Positive Anaerobes:

*Clostridium* spp.

Gram-Negative Anaerobes:

*Bacteroides* spp. not including *B. fragilis*

*Fusobacterium* spp.

**Inherently resistant organisms**

Gram-Positive Aerobes:

*Enterococcus* spp. including *E. faecalis* and *E. faecium*

*Listeria monocytogenes*

Gram-Negative Aerobes:

*Acinetobacter* spp.

*Burkholderia cepacia*

*Campylobacter* spp.

*Citrobacter freundii*

*Enterobacter aerogenes*

*Enterobacter cloacae*

*Morganella morganii*

*Proteus penneri*

*Proteus vulgaris*

*Pseudomonas* spp. including *Pseudomonas aeruginosa*

*Serratia* spp.

*Stenotrophomonas maltophilia*

Gram-Positive Anaerobes:

*Clostridioides difficile*

Gram-Negative Anaerobes:

*Bacteroides fragilis*

Others:

*Chlamydia* species

*Mycoplasma* species

*Legionella* species

## **5.2 Pharmacokinetic properties**

### **Absorption**

After oral administration, Proximexa/ Zinnat is absorbed from the gastrointestinal tract and rapidly hydrolysed in the intestinal mucosa and blood to release cefuroxime into the circulation.

Absorption of cefuroxime is enhanced in the presence of food.

Following administration of Proximexa/ Zinnat tablets peak serum levels (2.1 mg/l for a 125 mg dose, 4.1 mg/l for a 250 mg dose, 7.0 mg/l for a 500 mg dose and 13.6 mg/l for a 1 g dose) occur approximately 2 to 3 hours after dosing when taken after food.

The rate of absorption of cefuroxime from the suspension compared with the tablets is reduced, leading to later, lower peak serum levels and reduced systemic bioavailability (4-17% less).

### **Distribution**

Protein binding has been variously stated as 33-50% depending on the methodology used.

### **Metabolism**

Cefuroxime is not metabolised.

### **Elimination**

The serum half-life is between 1 and 1.5 hours.

Cefuroxime is excreted by glomerular filtration and tubular secretion. Concurrent administration of probenecid increases the area under the mean serum concentrations time curve by 50%.

### **Renal impairment:**

Cefuroxime pharmacokinetics have been investigated in patients with various degrees of renal impairment. Cefuroxime elimination half-life increases with decrease in renal function which serves as the basis for dosage adjustment recommendations in this group of patients (See Dosage and Administration). In patients undergoing haemodialysis, at least 60% of the total amount of cefuroxime present in the body at the start of dialysis will be removed during a 4-hour dialysis period. Therefore, an additional single dose of cefuroxime should be administered following the completion of haemodialysis.

## **5.3 Preclinical safety data**

Animal toxicity studies indicated that cefuroxime is of low toxicity with no significant findings

## **6. PHARMACEUTICAL PARTICULARS**

### **6.1 List of excipients**

Aspartame

Xantham gum

Acesulfame potassium

Povidone K30



Stearic acid

Sucrose

Tutti-frutti flavour

Sucrose Quantities:

Sucrose quantity (g per dose)				
125 mg/5 ml Suspension	250 mg/5 ml Suspension	125 mg Sachet	250 mg Sachet	500 mg sachet
3.062 g	2.289 g	3.062 g	6.124g	12.248 g

## 6.2 Incompatibilities

None.

## 6.3 Shelf life

36 months

The reconstituted suspension when refrigerated between 2 and 8°C can be kept for up to 10 days.

## 6.4 Special precautions for storage

The storage conditions are detailed on the packaging.

The reconstituted suspension must be refrigerated immediately at between 2 and 8°C.

## 6.5 Nature and contents of container and special equipment for use, administration or implantation

Multidose bottles:

Proximexa/ Zinnat Suspension is supplied in PhEur Type III amber glass bottles with an induction heat seal membrane containing either 125 mg/5 ml or 250 mg/5 ml product. Dosing syringes are available with multidose bottles of both strengths.

## 6.6 Use and handling

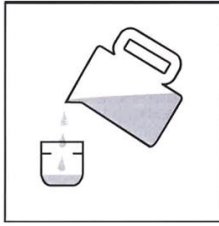
### • Reconstitution/Administration Instructions

Please note that the time taken to prepare Proximexa/ Zinnat suspension before administration of the first dose will take more than one hour. This includes time for the suspension to "settle" in the refrigerator.

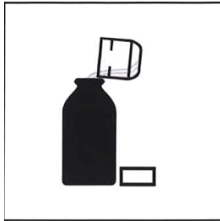
Directions for reconstituting suspension in multidose bottles:



Shake the bottle to loosen the content. All the granules should be free-flowing in the bottle. Remove the bottle cap and the heat-seal membrane. If the latter is damaged or not present, return the product to the pharmacist.



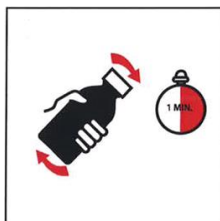
Add an amount of cold water up to the volume line on the measuring cup provided. If the water was previously boiled it must be allowed to cool to room temperature before adding. Do not mix Proximexa/ Zinnat oral suspension with hot or warm liquids. Cold water must be used to prevent the suspension becoming too thick.



Pour the total amount of cold water into the bottle. Replace the bottle cap. Allow the bottle to stand to allow the water to fully soak through the granules; this should take about one-minute.



Invert the bottle and shake well (for at least 15 seconds) until all the granules have mixed with the water.



Turn the bottle into an upright position and shake well for at least one-minute until all the granules have blended with the water.



- Store the cefuroxime axetil suspension in the refrigerator immediately at between 2 and 8°C (do not freeze) and let it rest for at least one hour before taking the first dose. The reconstituted suspension should be refrigerated at all times; when refrigerated between 2 and 8°C, the reconstituted suspension can be kept for up to 10 days.

- Always shake the bottle well before taking the medication. A dosing syringe or spoon is provided for the administration of each dose.
- If desired, cefuroxime axetil suspension from multidose bottles can be further diluted in cold fruit juices, or cold milk drinks and should be taken immediately after mixing.
- Directions for using the dosing syringe (if supplied):
  1. Remove the bottle cap and insert the syringe-collar assembly into the neck of the bottle. Press it down completely until the collar fits in the neck firmly. Invert the bottle and syringe.
  2. Pull the plunger up the barrel until the barrels rim is aligned with the mark on the plunger corresponding to the required dose.
  3. Turn the bottle and syringe into an upright position. While holding onto the syringe and the plunger to ensure that the plunger does not move, remove the syringe from the bottle, leaving the plastic collar in the bottle neck.
  4. With the patient seated in an upright position, place the tip of the syringe just inside the patient's mouth, pointing towards the inside of the cheek.
  5. Press the plunger of the syringe in slowly to expel the medicine without causing choking.
  6. After giving the dose, replace the bottle cap without removing the plastic collar. Dismantle the syringe and wash it thoroughly in water. Allow the plunger and the barrel to dry naturally.

## **7. APPLICANT/SUPPLIER**

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## **8. FDA APPLICATION NUMBER:**

**PROXIMEXA 125 MG Suspension:** FDA/SD.183-6453

**PROXIMEXA 250 MG Suspension:** FDA/SD.183-6454

**ZINNAT 125 MG Suspension:** FDA/SD.173-6323

## **9. DATE OF RENEWAL OF REGISTRATION**

**PROXIMEXA 125 MG Suspension:** 19/6/2018

**PROXIMEXA 250 MG Suspension:** 19/6/2018

**ZINNAT 125 MG Suspension:** 17/06/2020

## **10. DATE OF REVISION OF THE TEXT**

07/2020