

**Scheduling status:** S4

**Proprietary name (and dosage form):**

**Yomax 250 mg (Capsule)**

**Yomax 500 mg (Capsule)**

**Composition:**

YOMAX 250 mg:

Each capsule contains amoxicillin trihydrate equivalent to anhydrous amoxicillin 250 mg.

YOMAX 500 mg:

Each capsule contains amoxicillin trihydrate equivalent to anhydrous amoxicillin 500 mg.

**Pharmacological classification:**

A 20.1.2 Penicillins

**Pharmacological action:**

Amoxicillin is a semisynthetic beta-lactamase-susceptible penicillin, which has *in vitro* bactericidal activity against a broad spectrum of non beta-lactamase producing Gram positive, and Gram negative organisms.

The spectrum of activity does not include those organisms that produce beta-lactamases, namely resistant staphylococci, and all strains of *Pseudomonas*, *Klebsiella* and *Enterobacter*.

The following organisms are generally sensitive to the bactericidal action of amoxicillin *in vitro*. *In vitro* sensitivity does not mean *in vivo* efficacy [(\*) denotes sensitivity tests must be performed].

**Gram positive bacteria**

*Staphylococcus aureus* (penicillin sensitive)\*

*Streptococcus pyogenes*

*Streptococcus viridans*\*

*Streptococcus faecalis*\*

*Streptococcus pneumoniae*\*

*Corynebacterium species*\*

*Clostridium species*\*

*Bacillus anthracis*\*

*Listeria monocytogenes*

**Gram negative bacteria**

*Neisseria meningitidis* \*(except the carrier state)

*Neisseria gonorrhoeae*\*

*Haemophilus influenza*\*

*Bordetella pertussis*

*Escherichia coli*\*

*Salmonella species*\*

*Shigella species*\*

*Proteus mirabilis*\*

*Pasteurella multocida*\*

*Fusabacterium species*\*

*Helicobacter pylori*

*Leptospira species*

**Pharmacokinetics:**

**Absorption:**

Amoxicillin is stable in the presence of acidic gastric secretions. Peak blood levels are achieved 1 – 2 hours after administration. There is a linear dose response in peak serum levels. Food does not interfere with the absorption of amoxicillin.

**Distribution:**

Approximately 18 % of the total plasma amoxicillin content is protein bound. Amoxicillin diffuses readily into most body tissues with the exception of the brain and spinal fluid.

Inflammation generally increases the permeability of the meninges to penicillins and this may apply to amoxicillin.

**Excretion:**

The elimination half-life is approximately 1 hour. Amoxicillin is primarily excreted via the kidneys. Small amounts of the drug are also excreted in the faeces and bile.

Amoxicillin crosses the placenta and is distributed into breast milk.

**Indications:**

YOMAX formulations are indicated for the treatment of mild to moderately severe infections caused by susceptible organisms:

- 1 Upper respiratory tract infections such as sinusitis, otitis media, tonsillitis.
- 2 Lower respiratory tract infections such as bronchitis, lobar and bronchopneumonia.
- 3 Gastro-intestinal infections such as typhoid fever.
- 4 Other infections including Borreliosis (Lyme disease).
- 5 In the following infections, amoxicillin therapy should be initiated only if there is microbiological evidence that the causative organism is sensitive to amoxicillin:
  - Skin and soft tissue infections.
  - Urinary tract infections: cystitis, urethritis, pyelonephritis, bacteriuria in pregnancy.
- 6 As part of combination therapy in established *Helicobacter pylori* infection, associated with duodenal ulceration.
- 7 Prophylaxis of endocarditis.

**Contra-indications:**

Hypersensitivity to penicillins or to cephalosporins. Cross-sensitivity between penicillins and cephalosporins is well documented.

**Warnings:**

Serious and occasionally fatal hypersensitivity (anaphylactic) reactions have been reported in patients on penicillin therapy.

Before initiating therapy with YOMAX, careful enquiry should be made concerning previous hypersensitivity reactions to penicillins, cephalosporins or other allergens. Although anaphylaxis is more frequent following parenteral therapy, it has occurred in patients on oral penicillins. These reactions are more likely to occur in individuals with a history of penicillin hypersensitivity and/or a history of sensitivity to multiple allergens. There have been reports of individuals with a history of penicillin hypersensitivity, who have experienced severe reactions when treated with cephalosporin.

If an allergic reaction occurs, YOMAX should be discontinued and the appropriate therapy instituted. Serious anaphylactic reactions may require immediate emergency treatment with adrenaline.

Oxygen, intravenous steroids and airway management, including intubation may also be required.

YOMAX should be avoided if infectious mononucleosis is suspected since the occurrence of a morbilliform rash has been associated with this condition following the use of amoxicillin.

Prolonged use may result in overgrowth of non-susceptible organisms. Pseudomembranous enterocolitis has been reported.

Prolongation of prothrombin time has been reported rarely in patients receiving YOMAX. Appropriate monitoring should be undertaken when anticoagulants are prescribed concurrently.

Periodic assessment of organ function, including renal, hepatic and haematopoietic functions, is advisable during prolonged therapy.

Transient hepatitis and cholestatic jaundice has been reported. YOMAX should be used with caution in patients with evidence of hepatic dysfunction.

**Interactions:**

Probenecid decreases the renal tubular secretion of YOMAX. Concurrent use with YOMAX may result in increased and prolonged blood concentrations of YOMAX.

YOMAX may reduce the efficacy of oral contraceptives and patients should be warned accordingly.

The concomitant administration of allopurinol and ampicillin substantially increases the incidence of skin rashes in patients receiving both agents as compared to patients receiving ampicillin alone. It is not known whether this potentiation of ampicillin rashes is due to allopurinol or the hyperuricaemia present in these patients.

Tetracyclines and other bacteriostatic drugs may interfere with the bactericidal effects of YOMAX.

**Interaction with Laboratory tests:**

It is recommended that when testing for the presence of glucose in urine during YOMAX treatment, enzymatic glucose oxidase methods should be used. Due to the high urinary concentrations of YOMAX, false positive readings are common with chemical methods.

**Pregnancy and lactation:**

**Use in pregnancy:**

The safety of YOMAX in pregnancy has not been established.

**Use in lactation:**

YOMAX is distributed into breast milk. Although significant problems in humans have not been documented, the use of YOMAX by nursing mothers may lead to sensitisation, diarrhoea, candidiasis and skin rash in the infant.

**Dosage and directions for use:**

The total daily dose as below is administered in divided doses. The most common regimen is 8 hourly.

**Oral administration:**

Treatment should be continued for 48 to 72 hours beyond the time that a clinical response has been obtained. It is recommended that at least 10 days treatment be given for any infection caused by beta-haemolytic streptococci to prevent the occurrence of acute rheumatic fever or glomerulonephritis.

The absorption of YOMAX is not affected significantly when taken with food.

**Adults and children over 40 kg:**

Total daily dosage of 750 mg to 3 g administered in divided doses.

Maximum recommended dose: 6 g/day in divided doses

**Respiratory tract infections:** 500 mg administered 8 hourly.

**Lyme disease:** 4 g/day in isolated erythema chronicum migrans and 6 g/day in the case of generalised manifestations, both for a minimum of 12 days.

**Gonorrhoea:** 3 g with 1 g probenecid.

**Eradication of *Helicobacter pylori*:** 750 mg - 1 g in combination treatment given 2 hourly for eradication of established *H.pylori infection* associated with duodenal ulceration for seven days.

**Children under 40 kg:**

20 - 50 mg/kg/day in divided doses.

Maximum recommended dose: 150 mg/kg/day in divided doses.

**Lyme disease:** 25 - 50 mg/kg/day in isolated erythema chronicum migrans and 100 mg/kg/day in the case of generalised manifestations, both for a minimum of 12 days.

**Elderly:**

No adjustment needed: as for adults unless there is evidence of severe renal impairment (see below)

**Renal impairment:**

Glomerular filtration rate > 30 ml/min: No adjustment needed  
Glomerular filtration rate 10-30 ml/min: Maximum 500 mg 12 hourly

Glomerular filtration rate < 10 ml/mm: Maximum 500 mg daily.  
**In patients receiving peritoneal dialysis:** Maximum 500 mg daily

**Prophylaxis of endocarditis:**

Prophylaxis with alternative antibiotics should be considered if the patient has received penicillin within the previous month or is allergic to penicillin.

**For dental, oral or upper respiratory tract procedures:**

Prophylaxis for patients undergoing tonsillectomy, scaling or surgery involving gingival tissues, tonsillectomy, adenoidectomy, bronchoscopy with a rigid bronchoscope and surgical procedures that involve respiratory mucosa.

*For patients NOT having a general anaesthetic:*

Adults: 2 g orally, 1 hour before the procedure

Children: 50 mg/kg, 1 hour before the procedure

Children's dose not to exceed the adult dose.

**Side-effects and special precautions:**

**Side effects:**

**Gastrointestinal disorders:**

*Frequent:* Diarrhoea, nausea, vomiting, indigestion, abdominal pain, abnormal taste.

*Frequency unknown:* Gastritis, stomatitis, glossitis, black 'hairy' tongue, enterocolitis, mucocutaneous candidiasis and antibiotic-associated colitis (including pseudomembranous colitis and haemorrhagic colitis). If gastro-intestinal reactions are evident, they may be reduced by taking YOMAX at the start of a meal. Superficial tooth discolouration has been reported especially with the suspension and chewable tablet formulations. It can usually be removed by brushing.

*Skin and subcutaneous tissue disorders:*

*Frequent:* Skin rashes, urticaria and erythema multiforme, pruritus, serum sickness-like syndrome.

*Less frequent:* Stevens-Johnson syndrome, hypersensitivity vasculitis and bullous exfoliative dermatitis and toxic epidermal necrolysis.

Whenever such reactions occur, YOMAX should be discontinued. Serious and occasional fatal hypersensitivity (anaphylactic) reactions and angioneurotic oedema can occur with oral penicillin (see Warnings).

*Nervous system disorders:*

*Frequent:* Headache, dizziness.

*Less frequent:* Reversible hyperactivity and convulsions.

Convulsions may occur with impaired renal function or in those receiving high doses.

*Reproductive system and breast disorders:*

*Frequent:* Vaginitis

*Endocrine disorders:*

*Frequent:* Tiredness and hot flushes.

*Renal and urinary disorders:*

Less frequent: Interstitial nephritis, crystalluria.

*Hepato-biliary disorders:*

*Less frequent:* Hepatitis and cholestatic jaundice have been reported. The events may be severe, and occur predominantly in adult or elderly patients. Signs and symptoms usually occur during or shortly after treatment, but in some cases may not become apparent until several weeks after treatment has ceased. The hepatic effects are usually reversible. However, in extremely rare circumstances, death has been reported. These have almost always been cases associated with serious underlying disease or concomitant medication.

*Investigations:*

*Frequency unknown:* A moderate raise in Aspartate transaminase (AST) and/or Alanine transaminase (ALT) has been noted in patients treated with YOMAX, but the significance of these findings is unknown.

*Blood and the lymphatic system disorders:*

*Frequency unknown:* Haemolytic anaemia, reversible thrombocytopenia, thrombocytopenic purpura, eosinophilia, reversible leucopenia and agranulocytosis have been reported. These reactions are usually reversible on discontinuation of therapy and are believed to be hypersensitivity phenomena.

*Less frequent:* A slight thrombocytosis was noted in less than 1 % of the patients treated with YOMAX. Prolongation of bleeding time and prothrombin time have also been reported less frequently. Appropriate monitoring should be undertaken when anticoagulants are prescribed concomitantly.

**Special Precautions:**

Caution is needed when administering amoxicillin to patients with syphilis, as the Jarisch-Herxheimer reaction may occur in these patients.

When high doses are administered, adequate fluid intake and urinary output must be maintained.

The sodium content must be taken into account in patients on a sodium-restricted diet if the administration of high doses is necessary.

Periodic assessment of organ system functions, including renal, hepatic and haematopoietic function, is advisable during prolonged therapy. Since YOMAX contains amoxicillin, an aminopenicillin, it is not the treatment of choice in patients presenting with sore throat or pharyngitis because of the possibility that the underlying cause is infectious mononucleosis, in the presence of which there is a high incidence of rash if amoxicillin is used.

YOMAX should be given with caution to patients with lymphatic leukemia since they are especially susceptible to amoxicillin induced skin rashes.

The possibility of superinfections with mycotic or bacterial pathogens should be kept in mind during therapy. If superinfections occur, the agent should be discontinued and/or appropriate therapy instituted.

*Impaired hepatic function:*

Changes in liver function tests have been observed in some patients receiving YOMAX. It should be used with care in patients with evidence of severe hepatic dysfunction.

*Impaired renal function:*

In patients with moderate or severe renal impairment YOMAX dosage should be adjusted. (See Dosage and administration.)

*Use in Lactation:*

Amoxicillin is excreted in the milk. Therefore, caution should be exercised when YOMAX is administered to a nursing woman.

The use of YOMAX may lead to the selection of resistant strains of organisms and sensitivity testing should, therefore, be carried out whenever possible, to demonstrate the appropriateness of therapy.

**Known symptoms of overdose and particulars of its treatment:**

Overdosage with YOMAX is usually asymptomatic. However, gastrointestinal effects such as nausea, vomiting and diarrhoea may be evident and symptoms of water and electrolyte imbalance should be treated symptomatically.

Adequate fluid intake and urinary output must be maintained to minimise the possibility of crystalluria.

YOMAX may be removed from the circulation by haemodialysis.

**Identification:**

YOMAX 250 mg:

Maroon/yellow size "1" hard gelatin capsule filled with white to off white granular powder and imprinted with "A" on maroon cap and "85" on yellow body with black ink.

YOMAX 500 mg:

Maroon/yellow size "0EL" hard gelatin capsule filled with white to off white granular powder and imprinted with "A" on maroon cap and "86" on yellow body with black ink.

**Presentation:**

**1. Blisters:**

Both YOMAX 250 mg and YOMAX 500 mg:

**1. PVC/ACLAR-Aluminium Blister Packaging:**

Capsules are packed in 250 Micron white opaque PVC laminated with 23 Micron Aclar (Width 127 mm) as the forming material and 25 microns Aluminium foil (Width 123 mm) as the lidding material. Each blister contains 15 capsules. Pack size: 15's: Each carton contains 1 blister of 15 capsules.

**2. Triple Laminate: PVC/PE/PVdC- Aluminium Blister Packaging:**

Capsules are packed in Triple Laminate: 250 Micron white opaque PVC / 25 micron PE film coated with 60 GSM PVdC (width 127 mm) as the forming material and 25 microns Aluminium Foil (Width 123 mm) as the lidding material. Each blister contains 15 capsules. Pack size: 15's: Each carton contains 1 blister of 15 capsules.

**2. HDPE Containers:**

YOMAX 250 mg:

Tablets are packed in a HDPE container with a child resistant closure and induction sealing wad, in the following pack sizes: Pack size: 100's

Tablets are packed in a HDPE container with a stock ribbed closure and induction sealing wad, in the following pack sizes: Pack size: 500's

YOMAX 500 mg:

Tablets are packed in a HDPE container with a child resistant closure and induction sealing wad, in the following pack sizes: Pack size: 100's

**Storage conditions:**

Store in a cool, dry place below 25 °C. KEEP OUT OF REACH OF CHILDREN.

**Registration numbers:**

YOMAX 250 mg: 41/20.1.2/0687

YOMAX 500 mg: 41/20.1.2/0688

**Name and business address of the holder of the certificate of registration:**

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1<sup>st</sup> April 2008

<sup>1</sup>Company Registration nr: 2008/008787/07