SUMMARY OF PRODUCT CHARACTERISTICS.

1. Name of the medicinal product

Erythrox powder for oral suspension

2. Qualitative and quantitative composition

Each 5mL contains: Erythromycin (as Stearate) 125mg after reconstitution.
For the full list of excipients, see section 6.1.

3. Pharmaceutical form

Powder for oral suspension.
A pinkish coloured, free flowing granular powder yields a pink coloured suspension on reconstitution.

4. Clinical particulars

4.1 Therapeutic indications

Erythromycin is indicated for the treatment of the following infections when caused by susceptible microorganisms: Mild to moderate upper respiratory tract infections, Mild to moderate lower respiratory tract infections, Whooping cough (pertussis), Listeriosis, diphtheria, skin and skin structure infections, Acute pelvic inflammatory disease, Syphilis as an alternative to penicillins, Conjunctivitis of newborns, pneumonia of infancy, urogenital infections during pregnancy, uncomplicated urethral, endocervical or rectal infections caused by Chlamydia trachomatis, prophylaxis for initial attacks of rheumatic fever.

4.2 Posology and method of administration

Method of administration: Oral route

Dosage & Administration.

Adults and children over age 8 years: 250 - 500 mg every 6 hours or 0.5 – 1g every 12 hours.
Children 2– 8 years: 250 mg every 6 hours.
1 month to 2 years: 125mg every 6 hours.
Neonate: 12.5mg/kg every 6 hours.
Doses doubled for severe infections.

4.3 Contraindications

Known hypersensitivity to erythromycin.
Erythromycin is contraindicated in patients taking simvastatin, tolterodine, mizolastine, amisulpride, astemizole, terfenadine, and cisapride or pimozide. Erythromycin is contraindicated with ergotamine and dihydroergotamine.

4.4 Special warnings and precautions for use

Erythromycin is excreted principally by the liver, so caution should be exercised in administering the antibiotic to patients with impaired hepatic function or concomitantly receiving potentially hepatotoxic agents. Hepatic dysfunction including increased liver enzymes and/or cholestatic hepatitis, with or without jaundice, has been infrequently reported with erythromycin. There have been reports suggesting erythromycin does not reach the foetus in adequate concentrations to prevent congenital syphilis. Infants born to women treated during pregnancy with oral erythromycin for early syphilis should be treated with an appropriate penicillin regimen. There have been reports that erythromycin may aggravate the weakness of patients with myasthenia gravis. Erythromycin interferes with the fluorometric determination of urinary catecholamines. As with other broad-spectrum antibiotics, pseudomembranous colitis has been reported rarely with erythromycin. Rhabdomyolysis with or without renal impairment has been reported receiving erythromycin concomitantly with lovastatin.

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

Increases in serum concentrations of the following drugs metabolised by the cytochrome P450 system may occur when administered concurrently with erythromycin: acenocoumarol, alfentanil, astemizole, bromocriptine, carbamazepine, cilostazol, cyclosporin, digoxin, dihydroergotamine, disopyramide, ergotamine, hexobarbitone, methylprednisolone, midazolam, omeprazole, phenytoin, quinidine, rifabutin, sildenafil, tacrolimus, terfenadine, theophylline, triazolam, valproate, vinblastine, and antifungals e.g. fluconazole, ketoconazole and itraconazole. Appropriate monitoring should be undertaken and dosage should be adjusted as necessary. Particular care should be taken with medications known to prolong the QTc interval of the electrocardiogram.

Drugs that induce CYP3A4 (such as rifampicin, phenytoin, carbamazepine, phenobarbital, St John's Wort) may induce the metabolism of erythromycin. This may lead to sub-therapeutic levels of erythromycin and a decreased effect. The induction decreases gradually during two weeks after discontinued treatment with CYP3A4 inducers. Erythromycin should not be used during and two weeks after treatment with CYP3A4 inducers.
HMG-CoA Reductase Inhibitors: erythromycin has been reported to increase concentrations of HMG-CoA reductase inhibitors (e.g. lovastatin and simvastatin). Rare reports of rhabdomyolysis have been reported in patients taking these drugs concomitantly.
Contraceptives: some antibiotics may in rare cases decrease the effect of contraceptive pills by interfering with the bacterial hydrolysis of steroid conjugates in the intestine and thereby reabsorption of unconjugated steroid. As a result of this plasma levels of active steroid may decrease.
Antihistamine H1 antagonists: care should be taken in the coadministration of erythromycin with H1 antagonists such as terfenadine, astemizole and mizolastine due to the alteration of their metabolism by erythromycin.
Erythromycin significantly alters the metabolism of terfenadine, astemizole and pimozide when taken concomitantly. Rare cases of serious, potentially fatal, cardiovascular events including cardiac arrest, torsade de pointes and other ventricular arrhythmias have been observed.
Anti-bacterial agents: an in vitro antagonism exists between erythromycin and the bactericidal beta-lactam antibiotics (e.g. penicillin, cephalosporin). Erythromycin antagonises the action of clindamycin, lincomycin and chloramphenicol. The same applies for streptomycin, tetracyclines and colistin.
Protease inhibitors: in concomitant administration of erythromycin and protease inhibitors, an inhibition of the decomposition of erythromycin has been observed.
Oral anticoagulants: there have been reports of increased anticoagulant effects when erythromycin and oral anticoagulants (e.g. warfarin) are used concomitantly.
Triazolobenzodiazepines (such as triazolam and alprazolam) and related benzodiazepines: erythromycin has been reported to decrease the clearance of triazolam, midazolam, and related benzodiazepines, and thus may increase the pharmacological effect of these benzodiazepines.
Post-marketing reports indicate that co-administration of erythromycin with ergotamine or dihydroergotamine has been associated with acute ergot toxicity characterised by vasospasm and ischaemia of the central nervous system, extremities and other tissues.
Elevated cisapride levels have been reported in patients receiving erythromycin and cisapride concomitantly. This may result in QTc prolongation and cardiac arrhythmias including ventricular tachycardia, ventricular fibrillation and torsades de pointes. Similar effects have been observed with concomitant administration of pimozide and clarithromycin, another macrolide antibiotic.
Erythromycin use in patients who are receiving high doses of theophylline may be associated with an increase in serum theophylline levels and potential theophylline toxicity. In case of theophylline toxicity and/or elevated serum theophylline levels, the dose of theophylline should be reduced while the patient is receiving concomitant erythromycin therapy. There have been published reports suggesting when oral erythromycin is given concurrently with theophylline there is a significant decrease in erythromycin serum concentrations. This decrease could result in sub-therapeutic concentrations of erythromycin.
There have been post-marketing reports of colchicine toxicity with concomitant use of erythromycin and colchicine.
Hypotension, bradyarrhythmias and lactic acidosis have been observed in patients receiving concurrent verapamil, a calcium channel blocker.
Cimetidine may inhibit the metabolism of erythromycin which may lead to an increased plasma concentration.
Erythromycin has been reported to decrease the clearance of zopiclone and thus may increase the pharmacodynamic effects of this drug.

4.6 Fertility, pregnancy and lactation.

Erythromycin has been in widespread use for a number of years without apparent ill consequence. Animal studies have shown no hazard. Erythromycin has been reported to cross the placental barrier in humans, but foetal plasma levels are generally low. Erythromycin is excreted in breast milk, therefore, caution should be exercised when erythromycin is administered to a nursing mother.

4.7 Effects on ability to drive and use machines.

None known.

4.8 Undesirable effects.

Occasional side effects such as nausea, abdominal discomfort, vomiting and diarrhoea may be experienced. Reversible hearing loss associated with doses of erythromycin usually greater than 4g per day has been reported. Allergic reactions are rare and mild, although anaphylaxis has occurred. Skin reactions ranging from mild eruptions to erythema multiforme, Stevens-Johnson syndrome and toxic epidermal necrolysis have rarely been reported. There are no reports implicating erythromycin products with abnormal tooth development, and only rare reports of damage to the blood, kidneys or central nervous system. Cardiac arrhythmias have been very rarely reported in patients receiving erythromycin therapy. There have been isolated reports of chest pain, dizziness and palpitations; however, a cause and effect relationship has not been established. Symptoms of hepatitis, hepatic dysfunction and/or abnormal liver function test results

4.9 Overdose

Symptoms: hearing loss, severe nausea, vomiting and diarrhoea. Treatment involves gastric lavage, general supportive measures.

5. Pharmacological properties.

5.1 Pharmacodynamic properties.

***Pharmacotherapeutic group*:** Macrolides, Lincosamides and Streptogramins, Macrolides,

ATC code: J01F A01.

Erythromycin is a macrolide antibiotic which acts by inhibition of protein synthesis by binding to the 50 S ribosomal subunits of susceptible micro-organisms. It does not affect nucleic acid synthesis. Erythromycin has been shown to be active against most strains of the following organisms in clinical infections:

Gram-positive organisms: Corynebacterium diptheriae, Listeria monocytogenes, Staphylococcus aureus, Streptococcus pneumoniae, Streptococcus pyogenes.

Gram-negative organisms: Bordetella pertussis, Legionella pneumophila, Neisseria gonorrhoeae.

Other Micro-organisms: Chlamydia trachomatis Entamoeba histolytica, Mycoplasma pneumoniae, Treponema pallidum.

5.2 Pharmacokinetic properties.

Absorption: Erythromycin is completely and rapidly absorbed via gastrointestinal tract after oral administration with a peak serum levels occurring in 15 – 45 minutes with a bio-availability of 96% ± 10%. Erythromycin diffuses readily into most body fluids. Only low concentrations are achieved in the spinal fluid though this increases significantly in meningitis. In normal hepatic function, erythromycin is concentrated in the liver. Erythromycin is metabolized by hepatic microsomal enzymes. Erythromycin is principally excreted in bile, though about 5% is excreted in urine as inactive metabolites .Erythromycin crosses the placental barrier and is also excreted in breast milk.

5.3 Preclinical safety data

None known

6. Pharmaceutical particulars

6.1 List of excipients

Strawberry flavour, Sodium benzoate, disodium phosphate dihydrate, erythrosine colour pink, sodium lauryl sulphate, sodium CMC, sucrose and Aerosil.

6.2 Incompatibilities

Not applicable

6.3 Shelf life

3 years.

6.4 Special precautions for storage

Store in a dry place, below 30°C. Protected from direct sunlight.

Keep all medicines out of reach of children.

6.5 Nature and contents of container

Pack size: 100mL and 60mL HDPE in unit box along with literature insert.

6.6 Special precautions for disposal and other handling

No special requirements.

Any unused medicinal product or waste material should be disposed off in accordance with local requirements.

7. Marketing authorisation holder

DAWA Limited
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P.O Box 16633-00620, Nairobi-Kenya.

8. Manufacturer

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9. Legal category

Prescription Only Medicine (POM).

10. Date of revision of the text

May 2019.