1 NAME OF THE MEDICINAL PRODUCT

MUPIROCIN 20 mg/g ointment

2 QUALITATIVE AND QUANTITATIVE COMPOSITION

1 g of ointment contains 20 mg mupirocin.

Excipient with known effect: Butylated hydroxytoluene (E 321)

For the full list of excipients, see section 6.1.

3 PHARMACEUTICAL FORM

Ointment

Homogenous off-white ointment.

4.1 Therapeutic indications

MUPIROCIN ointment is a topical antibacterial agent, active against those organisms responsible for the majority of skin infections, e.g. *Staphylococcus aureus*, including methicillin-resistant strains, other staphylococci, streptococci. It is also active against Gram-negative organisms such as *Escherichia coli* and *Haemophilus influenzae*. MUPIROCIN ointment is used for skin infections, e.g. impetigo, folliculitis, furunculosis in adults, adolescents, children and infants aged 4 weeks and older.

4.2 Posology and method of administration

Posology

Adults (including elderly), adolescents, children and infants aged 4 weeks and older

MUPIROCIN ointment should be applied to the affected area two to three times a day for up to 10 days.

The area may be covered with a dressing or occluded if desired.

Paediatric population

Newborns

MUPIROCIN ointment has not been studied in term and preterm newborn infants under 4 weeks of age and therefore it should not be used in these patients until further data become available.

Renal impairment
Dosage adjustment may be required (see section 4.4).

Hepatic impairment
No dosage adjustment is necessary.

Method of administration

Topical.

Any product remaining at the end of treatment should be discarded.

Do not mix with other preparations as there is a risk of dilution, resulting in a reduction of the antibacterial activity and potential loss of stability of the mupirocin in the ointment.

4.3 Contraindications

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

This formulation is not suitable for ophthalmic or intranasal use.

4.4 Special warnings and precautions for use

Should a possible sensitisation reaction or severe local irritation occur with the use of MUPIROCIN ointment, treatment should be discontinued, the product should be washed off and appropriate therapy instituted.

As with other antibacterial products, prolonged use may result in overgrowth of non-susceptible organisms.

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. Although this is less likely to occur with topically applied mupirocin, if prolonged or significant diarrhoea occurs or the patient experiences abdominal cramps, treatment should be discontinued immediately and the patient investigated further.

Renal impairment

Polyethylene glycol can be absorbed from open wounds and damaged skin and is excreted by the kidneys. In common with other polyethylene glycol based ointments, MUPIROCIN ointment should not be used in conditions where absorption of large quantities of polyethylene glycol is possible, especially if there is evidence of moderate or severe renal impairment.

MUPIROCIN ointment is not suitable for:

- ophthalmic use
- intranasal use
- use in conjunction with cannulae
- at the site of central venous cannulation.

Avoid contact with the eyes. If contaminated, the eyes should be thoroughly irrigated with water until the ointment residues have been removed.

Butylated hydroxytoluene may cause local skin reactions (e. g. contact dermatitis), or irritation to the eyes and mucous membranes.

4.5 Interaction with other medicinal products and other forms of interaction

No drug interactions have been identified.

4.6 Fertility, pregnancy and lactation

Pregnancy

Reproduction studies on mupirocin in animals have revealed no evidence of harm to the fetus (see section 5.3). As there is no clinical experience on its use during pregnancy, MUPIROCIN ointment should only be used in pregnancy when the potential benefits outweigh the possible risks of treatment.

Breast-feeding

There is no information on the excretion of mupirocin in milk. If a cracked nipple is to be treated, it should be thoroughly washed prior to breast feeding.

Fertility

There are no data on the effects of mupirocin on human fertility. Studies in rats showed no effects on fertility (see section 5.3).

4.7 Effects on ability to drive and use machines

No adverse effects on the ability to drive or operate machinery have been identified.

4.8 Undesirable effects

Adverse reactions are listed below by system organ class and frequency. Frequencies are defined as:

very common	(≥ 1/10)
common	(≥ 1/100 to <1/10)
uncommon	(≥ 1/1,000 to <1/100)
rare	(≥ 1/10,000 to <1/1,000)
very rare	(<1/10,000).

Common and uncommon adverse reactions were determined from pooled safety data from clinical studies. Very rare adverse reactions were primarily determined from post-marketing experience data and therefore refer to reporting rate rather than true frequency.

Immune system disorders

Very rare: Systemic allergic reactions including anaphylaxis, generalised rash, urticaria and angioedema have been reported with mupirocin.

Skin and subcutaneous tissue disorders

Common: Burning localised to the area of application.

Uncommon: Itching, erythema, stinging and dryness localised to the area of application. Cutaneous sensitisation reactions to mupirocin or the ointment base.

Paediatric population

Frequency, type and severity of adverse reactions in children are the same as in adults.

Reporting of suspected adverse reactions

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 the Yellow Card Scheme at www.mhra.gov.uk/yellowcard.

4.9 Overdose

The toxicity of mupirocin is very low. In the event of accidental ingestion of the ointment symptomatic treatment should be given.

In case of erroneous oral intake of large quantities of the ointment, renal function should be closely monitored in patients with renal insufficiency because of the possible side effects of polyethylene glycol.

5 PHARMACOLOGICAL PROPERTIES

5.1 Pharmacodynamic properties

Pharmacotherapeutic group: Dermatologicals, Antibiotics and chemotherapeutics for dermatological use

ATC code: D06AX09

Mechanism of action
Mupirocin is a novel antibiotic produced through fermentation by *Pseudomonas fluorescens*. Mupirocin inhibits isoleucyl transfer-RNA synthetase, thereby arresting bacterial protein synthesis.
Mupirocin has bacteriostatic properties at minimum inhibitory concentrations and bactericidal properties at the higher concentrations reached when applied locally.

Mechanism of resistance
Low-level resistance in staphylococci is thought to result from point mutations within the usual staphylococcal chromosomal gene (ileS) for the target isoleucyl tRNA synthetase enzyme. High-level resistance in staphylococci has been shown to be due to a distinct, plasmid encoded isoleucyl tRNA synthetase enzyme.
Intrinsic resistance in Gram-negative organisms such as the *Enterobacteriaceae* could be due to poor penetration of the outer membrane of the Gram-negative bacterial cell wall.
Due to its particular mode of action, and its unique chemical structure, mupirocin does not show any cross-resistance with other clinically available antibiotics.

Microbiological susceptibility
The prevalence of acquired resistance may vary geographically and with time for selected species, and local information on resistance is desirable, particularly when treating severe infections. As necessary, expert advice should be sought when the local prevalence of resistance is such that the utility of the agent in at least some types of infection is questionable.

Commonly susceptible species
*Staphylococcus aureus**
*Streptococcus pyogenes**
Streptococcus spp. (β-haemolytic, other than *S. pyogenes*)

Species for which acquired resistance may be a problem
Staphylococcus spp., coagulase negative
Inherently resistant organisms
Corynebacterium spp.
Micrococcus spp.

* Activity has been satisfactorily demonstrated in clinical studies

5.2 Pharmacokinetic properties

After topical application, mupirocin is only very minimally absorbed systemically and that which is absorbed is rapidly metabolised to the antimicrobially inactive metabolite, monic acid. Penetration of mupirocin into the deeper epidermal and dermal layers of the skin is enhanced in traumatised skin and under occlusive dressings.

5.3 Preclinical safety data

Pre-clinical effects were seen only at exposures which are extremely unlikely to cause concern for humans under normal conditions of use. Mutagenicity studies revealed no risks to man.

6 PHARMACEUTICAL PARTICULARS

6.1 List of excipients

Polyethylene glycol 400

Polyethylene glycol 3350 (with butylated hydroxytoluene (E 321))

6.2 Incompatibilities

In the absence of compatibility studies, this medicinal product must not be mixed with other medicinal products.

6.3 Shelf life

2 years.

After first opening, the contents can be used for 10 days.

6.4 Special precautions for storage

Store below 25 °C.

6.5 Nature and contents of container

Aluminium tube

5 g, 2 x 5 g, 3 x 5 g, 15 g, 2 x 15 g.

Not all pack sizes may be marketed.

6.6 Special precautions for disposal and other handling

No special requirements.

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

Wash your hands after application.

7 MARKETING AUTHORISATION HOLDER

INFECTOPHARM Arzneimittel
und Consilium GmbH
Von-Humboldt-Straße 1
64646 Heppenheim
Germany

8 MARKETING AUTHORISATION NUMBER(S)

PL 15011/0011

9 DATE OF FIRST AUTHORISATION/RENEWAL OF THE AUTHORISATION

14/03/2013 / 12/02/2018

10 DATE OF REVISION OF THE TEXT

28/11/2018