Summary of Product Characteristics

1 NAME OF THE MEDICINAL PRODUCT

Minoxidil for men 5% w/v cutaneous solution

2 QUALITATIVE AND QUANTITATIVE COMPOSITION

Each ml contains 50 mg of minoxidil. One ml is equivalent to 10 sprays (if using the pump). Excipient(s) with known effect
Each ml contains 455.5 mg of ethanol (96%).

For the full list of excipients, see section 6.1.

3 PHARMACEUTICAL FORM

Cutaneous solution.
The solution is transparent and colourless to slightly yellowish with an alcohol aroma.

4 CLINICAL PARTICULARS

4.1 Therapeutic indications

Treatment of moderate androgenetic alopecia in men aged 18 – 65 years.

4.2 Posology and method of administration

Posology
Adult men between 18 and 65 years of age
Hair and scalp should be thoroughly dry prior to the application of Minoxidil cutaneous solution. The recommended daily dose is 1 ml twice daily (once in the morning and once in the evening), applied to the total affected areas of the scalp starting in the centre of the area to be treated. 1 ml is equivalent to 10 sprays using the dosage pump.

Always apply the recommended daily dose, regardless of the extent of the alopecia.

The maximum daily dose is 2 ml.

Duration of use

It may take at least 2 to 4 months of twice a day treatment before results are seen. Onset and degree of hair growth may be variable among patients.

Continuous twice-daily usage is necessary to maintain the results of treatment. Relapse to pre-treatment appearance following discontinuation of medication has been reported to occur within 3-4 months (see section 5.1).

In the absence of any clear response, the treatment should be discontinued after 4 months.

Special populations

Use in women
Should not be used by women as the safety and effectiveness of Minoxidil cutaneous solution in women has not been established.

Renal and hepatic impairment
There are no specific recommendations for use in patients with renal or hepatic impairment.

Elderly patients
Not recommended as the safety and effectiveness of Minoxidil cutaneous solution in adults over 65 years has not been established.

Paediatric population
Not recommended as the safety and effectiveness of Minoxidil cutaneous solution in children and adolescents below the age of 18 years has not been established.

Method of administration

For cutaneous use only. Do not ingest. Do not apply Minoxidil cutaneous solution to other parts of the body.

Before use, the bottle cap should be removed and replaced with the dosage pump.

The hair and scalp should be thoroughly dry prior to application. Apply to the total affected areas of the scalp starting in the centre of the area to treat. If fingertips are used to facilitate drug application, hands should be washed thoroughly after application.

It is recommended to wash hands thoroughly with water before and after application of Minoxidil cutaneous solution.

4.3 Contraindications

- Hypersensitivity to the active substance or to any of the excipients listed in section 6.1.
- In women.
- In users with treated or untreated hypertension.
- In users with any scalp abnormality (including psoriasis and sunburn).
- In users with a shaved scalp.
- If occlusive dressings or other topical medical preparations are being used.

4.4 Special warnings and precautions for use

The safety and efficacy of this product in patients aged less than 18 years or aged over 65 years is unknown.

Minoxidil cutaneous solution should only be used on a normal healthy scalp. Do not use if scalp is inflamed, infected, irritated.

Minoxidil cutaneous solution is only indicated for the treatment of androgenetic alopecia in men aged 18 – 65 years and should not be used in other types of hair loss, for example when there is no family history of hair loss, hair loss is sudden and/or patchy or the reason for hair loss is unknown.

The patient should stop using Minoxidil cutaneous solution and see a doctor if hypotension is detected or if the patient is experiencing chest pain, rapid heart-beat, faintness or dizziness, sudden unexplained weight gain, swollen hands or feet, persistent redness or irritation of the scalp, or other unexpected new symptoms occur (see section 4.8).

Prior to treatment with Minoxidil cutaneous solution, the patient should be thoroughly examined and medical history taken. Endocrinological disorder, underlying systemic diseases or malnutrition must be excluded. In theses cases, if necessary, a specific treatment should be initiated.

Patients with known cardiovascular disease or cardiac arrhythmias should contact a physician before using Minoxidil cutaneous solution.

Accidental ingestion may cause serious cardiac adverse events. Therefore, this product has to be kept out of the reach of children.

Hands should be washed thoroughly after applying the solution. Inhalation of the spray mist should be avoided. Some patients have experienced changes in hair colour and/or texture with minoxidil use.
Some consumers reported increased hair shedding upon initiation of therapy with minoxidil. This is most likely due to minoxidil's action of shifting hairs from the resting telogen phase to the growing anagen phase (old hairs fall out as new hairs grow in their place). This temporary increase in hair shedding generally occurs two to six weeks after beginning treatment and subsides within a couple of weeks. If shedding persists (>2 weeks), users should stop using

Minoxidil cutaneous solution and consult their doctor.

Users should be aware that, whilst extensive use of Minoxidil cutaneous solution has not revealed evidence that sufficient minoxidil is absorbed to have systemic effects, greater absorption because of misuse, individual variability, unusual sensitivity or decreased integrity of the epidermal barrier caused by inflammation or disease processes in the skin (e.g. excoriations of the scalp, or scalp psoriasis) could lead, at least theoretically, to systemic effects.

Using more than the recommended dose or applying more often will not improve results. Continued use is necessary to increase and maintain hair re-growth, or hair loss will begin again. Unwanted hair growth may be caused by the transfer of the product to areas other than the scalp.
In the event of accidental contact with sensitive surfaces (eye, abraded skin and mucous membranes) the area should be bathed with large amounts of cool tap water.

The treated area must not be exposed to sun or ultraviolet lamps (UVA). It is important to use specific protection on the treated area.
Hypertrichosis in children following inadvertent topical exposure to minoxidil:
Cases of hypertrichosis have been reported in infants following skin contact with minoxidil application sites of patients (caregivers) using topical minoxidil. Hypertrichosis was reversible, within months, when infants were no longer exposed to minoxidil. Contact between children and minoxidil application sites should therefore be avoided.

Warningsonexcipients

This medicine contains 455.5 mg alcohol (ethanol 96%) in each ml of cutaneous solution. It may cause burning sensation on damaged skin.

4.5 Interaction with other medicinal products and other forms of interaction

Topical minoxidil should not be used concurrently with any other medications on the scalp.

Pharmacokinetic drug interaction studies in humans revealed percutaneous minoxidil absorption is enhanced by tretinoin and anthralin as a result of increased stratum corneum permeability; betamethasone dipropionate increases local tissue concentrations of minoxidil and decreases systemic minoxidil absorption.

Guanethidine has been reported to interact with oral formulations of minoxidil resulting in rapid and pronounced lowering of blood pressure.

4.6 Fertility, pregnancy and lactation

Topical minoxidil should not be used by women.

Topical minoxidil should not be used during pregnancy and lactation.

Pregnancy
There are no adequate and well controlled studies in pregnant women. Animal studies have shown a risk to the fetus at exposure levels that are very high compared to those intended for human exposure. There is potentially a risk of fetal harm in humans (see section 5.3, Preclinical safety data).

Breast-feeding
Systemically absorbed minoxidil is secreted in human milk. The effect of minoxidil on newborns/infants is unknown.

Fertility
There are no adequate and well controlled studies relating to female fertility.

Studies in animals have shown fertility toxicity - reduced conception and implantation rates as well as a reduction in the number of live pups at exposure levels that are very high compared to those intended for human exposure (see section 5.3). The potential risk in humans is unknown.

4.7 Effects on ability to drive and use machines

Minoxidil may cause dizziness or hypotension. If patients are affected, they should not drive or operate machinery.

4.8 Undesirable effects

In placebo-controlled trials, the overall frequency of adverse events in females in all body system categories was approximately five times that of males.

Several thousand patients have used topical minoxidil in clinical trials where a comparison with an inactive solution was made. Dermatological reactions (e.g. irritation, itching) occurred in patients using both solutions. This has been explained by the presence of propylene glycol in both the active and inactive solution.

The safety of topical minoxidil from clinical trial data is based on data from 7 placebo-controlled randomised clinical trials in adults evaluating either 2% or 5% minoxidil solution, and two placebo-controlled randomised clinical trials in adults evaluating a 5% foam formulation.

The frequencies are provided according to the following convention:

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) and not known (cannot be estimated from the available data).

Body System	**Frequency**	**Adverse Drug Reaction**
Immune system disorders	Not known	Allergic Contact dermatitis Allergic reactions including angioedema Hypersensitivity
Nervous system disorders	Very common	Headache
	Uncommon	Dizziness
Eye disorders	Not known	Eye irritation (including eye pruritus)
Cardiac disorders	Rare	Chest pain Heart rate increased (tachycardia) Palpitations
Vascular disorders	Not known	Hypotension
Respiratory, thoracic and mediastinal disorders	Common	Dyspnoea
Gastrointestinal disorders	Uncommon	Nausea
	Not known	Vomiting
Skin and subcutaneous tissue disorders	Common	Dermatitis (including atopic and seborrhoeic dermatitis) Dermatitis acneiform Hypertrichosis (unwanted non-scalp hair including facial hair growth in women) Pruritus Rash (including rash pruritic, pustular, papular, generalised vestibular and macular)
	Not known	Hair colour changes Hair texture abnormal Temporary hair loss
General disorders and administration site conditions	Common	Oedema peripheral
	Not known	Application site reactions (these sometimes involve

		nearby structures like the ears and face and typically consist of pruritus, irritation, pain, rash, oedema, dry skin and erythema but can sometimes be more severe and include exfoliation, dermatitis, blistering, bleeding and ulceration)
Investigations	Common	Weight increased*
Psychiatric Illnesses	Not known	Depressed mood

* This adverse event was identified during clinical trials with Minoxidil Foam

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 HPRA Pharmacovigilance, Website: www.hpra.ie.

4.9 Overdose

Signs and symptoms
Increased systemic absorption of minoxidil may potentially occur if higher-than-recommended doses are applied to larger surface areas of the body or areas other than the scalp which therefore may lead to adverse events.
There is no evidence that topically applied minoxidil is absorbed in sufficient quantity to cause systemic effects. When used as directed, overdose is unlikely.
Overdose due to oral administration or excessive systemic exposure of minoxidil exaggerates its cardiovascular effects and may present as hypotension, tachycardia and lethargy.
Because of the concentration of minoxidil in this medicinal product, accidental ingestion has the potential of producing systemic effects related to the pharmacological action of the drug (2ml of Minoxidil for Men 5% cutaneous solution contains 100mg; the maximum recommended adult dose for oral minoxidil administration in the treatment of hypertension).
If this product is applied to an area of decreased integrity of the epidermal barrier caused by trauma, inflammation, or disease process in the skin, there is a potential for a systemic overdose effect.
The following very rare (< 1/10,000) adverse events may occur due to the systemic effects of minoxidil:
Cardiovascular disorders: Heart rate increased, hypotension.
General Disorders: Fluid retention resulting in weight increase.
Nervous System Disorders: Dizziness.
Treatment
Treatment of minoxidil overdosage should be symptomatic and supportive. Fluid retention can be managed with appropriate diuretic therapy. Clinically significant tachycardia can be controlled by administration of a beta-adrenergic blocking agent.

5 PHARMACOLOGICAL PROPERTIES

5.1 Pharmacodynamic properties

Pharmacotherapeutic group: Other dermatological preparations, ATC Code: D11AX01.

Minoxidil (2,4 - diamino-6-piperidinopyrimidine-3-oxide) when administered orally is a vasodilator that acts directly on the smooth vascular muscle cells, causing a reduction in peripheral vascular resistance and reducing both systolic and diastolic blood pressure, even in patients with severe or refractory hypertension. Its hypotensive effect is associated with increased heart rate.

Cutaneous application of Minoxidil has an anti-alopecic effect. Literature references highlight that minoxidil stimulates the growth of keratinocytes *in vitro* and *in vivo* together with hair growth in some patients with androgenic alopecia. The appearance of this phenomenon occurs after use of this medicine for a minimum period of 4 months, and varies according to each patient, although its mechanism of action remains unclear.

When treatment with minoxidil is stopped, hair growth may stop and return to the initial state of alopecia within 3-4 months.

5.2 Pharmacokinetic properties

Absorption:
After cutaneous application, minoxidil shows minimum absorption, only a mean amount of 1.7% (0.3-4.5%) of the dose applied of minoxidil 20 mg/ml and minoxidil 50 mg/ml, respectively, would pass to general circulation. Therefore, for a dose of 1 ml in solution form at 2% (i.e. application of 20 mg of minoxidil) or 5% (i.e. application of 50 mg of minoxidil), the amount of minoxidil absorbed corresponds to 0.28 mg and 0.85 mg, respectively.

Systemic effects may occur above the doses between 2.4-5.4 mg/daily. This dose could be reached with application of minoxidil 50 mg/ml on the entire scalp without limitation to the alopecic area.

By way of comparison, oral administration of minoxidil tablets, for treatment of certain types of hypertension, determines its complete absorption at gastrointestinal tract level.

Modification of its absorption in concomitant dermal disorders has not been determined.

Biotransformation and distribution:
The serum concentration of minoxidil after cutaneous application is according to its degree of percutaneous absorption.

Elimination:
The elimination half-life of 95% of minoxidil absorbed, after cutaneous application is 96 h (four days). Both minoxidil and its metabolite are excreted mainly in urine.

In a study on healthy volunteers in which minoxidil 50 mg/ml (5%) was radioactively labelled, low levels were observed in urine, with mean values between 1.6-3.9% of the dose applied. No levels of minoxidil were observed in faeces. The quantity of minoxidil recovered on the skin surface of the scalp fluctuated between 41%-45% of the dose applied.

5.3 Preclinical safety data

Preclinical data reveal no special hazards for humans based on conventional studies of safety pharmacology, repeated dose toxicity, genotoxicity or carcinogenic potential.

Mutagenicity:
Minoxidil showed no evidence of mutagenic/genotoxic potential in a number of in vitro and in vivo assays.

Carcinogenicity:
A high incidence of hormone-mediated tumours was observed in mice and rats. These tumours are due to the secondary hormonal (hyperprolactinemia) effects observed only in the rodents at extremely high doses by a mechanism similar to that seen with reserpine.

Application of topical minoxidil has not demonstrated any effect on hormonal status in women. Therefore, hormonally mediated tumour promotion by minoxidil does not represent a carcinogenic risk to humans.

Teratogenicity:
Animal reproduction toxicity studies in rats and rabbits have shown signs of maternal toxicity and a risk to the foetus at exposure levels that are very high compared to those intended for human use.

Fertility:
Minoxidil doses greater than 9 mg/kg (at least 25-fold human exposure) administered subcutaneously in rats were associated with reduced conception and implantation rates as well as reduction in the number of live pups.

6 PHARMACEUTICAL PARTICULARS

6.1 List of excipients

Ethanol 96%
Glycerol
2-butenedioic acid, polymer with methoxyethene, monobutyl ester
Purified water

6.2 Incompatibilities

Not applicable.

6.3 Shelf life

Unopened: 3 years
Once opened: Use within 30 days

6.4 Special precautions for storage

No special storage conditions are required.

6.5 Nature and contents of container

White HDPE plastic bottle with white PP cap. Bottle comes with plastic push-button dosage pump with spray nozzle.

Each bottle contains 60 ml cutaneous solution. The following pack sizes are available: 60 ml, 120 ml (2 bottles of 60 ml), 180 ml (3 bottles of 60 ml) and 240 ml (4 bottles of 60 ml) of cutaneous solution.

Not all pack sizes may be marketed.

6.6 Special precautions for disposal of a used medicinal product or waste materials derived from such medicinal product and other handling of the product

The solution is flammable and exposure of the container and contents to naked flames should be avoided during use, storage and disposal. Any unused medicinal product or waste material should be disposed of in accordance with local regulations.

7 MARKETING AUTHORISATION HOLDER

Careforsons Ireland Limited
New Cork Road
Cork
Ireland

8 MARKETING AUTHORISATION NUMBER

PA22753/001/001

9 DATE OF FIRST AUTHORISATION/RENEWAL OF THE AUTHORISATION

Date of first authorisation: 30th April 2021

10 DATE OF REVISION OF THE TEXT

February 2025