## International Platform of Registered Systematic Review and Meta-analysis Protocols

# INPLASY

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Author Affiliation: Mediprobe Research Inc. The comparative effectiveness of prescription and selected alternative therapies for pattern hair loss: protocol for a multiple treatment comparison metaanalysis

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#### ADMINISTRATIVE INFORMATION

Support - None.

Review Stage at time of this submission - Piloting of the study selection process.

Conflicts of interest - None declared.

INPLASY registration number: INPLASY202560102

**Amendments** - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 25 June 2025 and was last updated on 25 June 2025.

## INTRODUCTION

eview question / Objective Pattern baldness, the most common form of alopecia, is a condition where non-scarring hair loss results from 'hair follicle miniaturization'whose etiology can be androgen-dependent or androgen-independent. The various synonyms for this condition include 'pattern hair loss' (PHL) and 'androgenetic alopecia' (AGA)-where the latter is more appropriate for males. Various therapeutic interventions have been approved, by the United States Food and Drug Administration (FDA), as a treatment for PHL, such as 1 milligram (mg) of oral finasteride (for men) and the 5% and 2% concentrations of topical minoxidil (for both men and women). Persons with PHL also consume therapies that are not FDA-approved-but whose therapeutic efficacy has somewhat been substantiated in randomized trials. While the publication of such trials has expanded the evidence base of alternative medicines for the AGA literature, it has-on the other hand-widened

knowledge gaps on the comparative effectiveness of frequently used medicines for the condition. Hence, the purpose of the proposed study is to determine the relative effectiveness of conventional monotherapies and select alternative therapies for AGA.

**Rationale** The medicinal impact of finasteride—a 5-alpha reductase inhibitor (5-ARI)—is androgendependent, while that of minoxidil can be independent of androgen metabolism. For AGA, 1 mg oral finasteride is a prescription medication, while 2% and 5% topical minoxidil are available over-the-counter (OTC). Though the pathophysiology of AGA has not been completely elucidated, the efficacy of the FDA-approved medicines has been confirmed by various randomized trials. Notwithstanding this, the consumption of alternative medicines for PHL is widespread. Hence, the overall rationale for the proposed study is that the existing AGA literature is at a point where there is sufficient evidence to

1

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conduct a network meta-analysis of the commonly consumed alternative and conventional therapies.

Condition being studied Pattern hair loss.

#### **METHODS**

**Search strategy** Systematic searches will be conducted in PubMed and Scopus.

**Participant or population** Persons with pattern hair loss of any age, gender and ethnicity.

**Intervention** Monotherapy with minoxidil, finasteride or dutasteride.

Comparator Placebo or vehicle.

**Study designs to be included** Prospective studies including randomized controlled trials.

**Eligibility criteria** Studies whose data will be included in the network meta-analysis should be published in English language, be of trial design, and have at least one arm investigating monotherapy with conventional medicines or select alternative therapies.

**Information sources** Systematic searches of the relevant peer-reviewed literature will be conducted in electronic databases.

**Main outcome(s)** The outcome measure for our network meta-analysis is the 24-week change in total hair density (in hairs per square centimeter.

**Quality assessment / Risk of bias analysis** The evidence quality of eligible studies will be evaluated with Cochrane Collaboration Risk of Bias (RoB) assessment tools.

**Strategy of data synthesis** The network metaanalysis will be conducted under a Bayesian model.

Subgroup analysis None.

**Sensitivity analysis** The proposed study will conduct a severity-adjusted network meta-analysis as a sensitivity analysis.

Language restriction English.

Country(ies) involved Canada.

**Keywords** total hair density; androgenetic alopecia; minoxidil; comparative effectiveness; 5-alpha reductase.

### **Contributions of each author**

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