

# A Study of Prescription Patterns and Cost of Treatment of Acne Vulgaris in Kalutara District, Sri Lanka, and Development of an Extemporaneous Dapsone Anti-acne Topical Solution

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For the management of acne vulgaris, there are various treatment options available. First objective of this study was to analyze available anti-acne medicines, their prescribing pattern and cost of treatment in Kalutara district and the second objective was to formulate an extemporaneous topical anti-acne solution containing dapsone as the active drug. This study was carried out in two phases. In the first phase, 20 pharmacies were selected randomly and 20 prescriptions per pharmacy were collected. Data were analyzed by Microsoft Excel. In the second phase, formulation was carried out by using diethylene glycol monoethyl ether as the solvent, hydroxyethyl cellulose as the thickening agent, diluted hydrochloric acid and 5 % sodium hydroxide as pH modifying agents. All medicines used were quantified using the Defined Daily Doses (DDDs). Doxycycline (26.9375 DDDs/patient) was the most frequently prescribed oral medication. Tretin A (30 g/patient) and Deriva C gel (15 g/patient) were the most frequently prescribed topical preparations containing single API and combination API respectively. Average cost per prescription containing doxycycline was LKR 849.05. Average cost per prescription containing tretin A and deriva C gel were LKR 1362.48 and LKR 3216.07 respectively. There was a trend of prescribing generics in oral medications and branded preparations in topical medications. Average cost of one prescription varied depending on the type of antibiotic or the type of topical preparation prescribed. In the second phase, for the preparation of 30 ml of 5 % dapsone solution, dapsone 100 mg (15 tablets), hydroxyethyl cellulose – 0.2 g, diethylene glycol monoethyl ether – 6 ml and water up to 30 ml were proven to be effective. As this is an extemporaneous formulation, complex formulation techniques were not used, and the usage of such techniques will ultimately increase the cost compliance towards the product in patients.

**Keywords:** Acne vulgaris, Active Pharmaceutical ingredient (API), Drug utilization, Extemporaneous solution, Prescription pattern