



## Acne Vulgaris Treatment & Antibiotic Resistance

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Acne vulgaris is one of the more prevalent skin conditions that affect people of various ages. It involves a complex and multifactorial pathogenesis that develops within the pilosebaceous unit. Physical and psychological scarring of certain extent often accompanies this condition.

Clinically, acne lesions can be classified as non-inflammatory and inflammatory. *P. acnes* is very much implicated in the latter. For many years, antibiotics have been effectively used for inflammatory acne. However, since the 1970s, resistant strains of *P. acnes* have been noted to increase progressively. In this era of rising antibiotic resistance, judicious use of antibiotic in acne treatment is ever more important.

### Topical Treatments

The table below lists the effects of topical medications on *P. acnes*, as well as their influence on another two key pathophysiologic factors in acne vulgaris:

Medications	Reduce <i>P.acnes</i>	Reduce Inflammation	Reduce Comedones
Benzoyl Peroxide	++	+	+
Tretinoin	--	--/+	++
Isotretinoin	--	--/+	++
Adapalene	--	+	++
Erythromycin	++	++	--
Clindamycin	++	++	--
Azelaic Acid	+	+	--/+
Resorcinol	--/+	--	+
Sulphur	+	--	+
Salicylic Acid	--	--	+
Nicotinamide	--	+	--

Key: -- = no effect; + = mild effect; ++ = strong effect

Benzoyl peroxide, erythromycin and clindamycin are the main agents against *P. acnes*. Azelaic acid, resorcinol and sulphur have demonstrated mild antibacterial activities. Resistance is more pronounced with erythromycin and cross-resistance to clindamycin has been reported. No resistance has been associated with benzoyl peroxide. Combination therapy of an antibiotic with benzoyl peroxide or topical retinoid can enhance their efficacy in addition to limiting development of resistant strains.

### Systemic Treatments

The commonly used oral antibiotics are tetracycline, doxycycline, minocycline, erythromycin and occasionally co-trimoxazole. Resistance of *P. acnes* to erythromycin is greatest. Among the tetracyclines, resistance is lowest for minocycline. Nevertheless, in the selection of antibiotics, other factors, for example, adverse effects and cost-effectiveness are also considered.

Due to its adverse effects, oral isotretinoin is primarily indicated for severe nodulocystic acne, or recalcitrant conditions that are unresponsive to systemic antibiotics and other conventional treatments. It is also used for patients who are seriously affected by physical or emotional scarring.

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