

# WHAT FUTURE FOR HEAD LICE CONTROL IN THE UK: WILL WE LEARN FROM OUR MISTAKES ?

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Control of head lice, *Pediculus capitis*, in the UK using traditional pediculocides has become increasingly problematic in recent years. It is widely accepted that there is widespread resistance to the most frequently used insecticides, the pyrethroids and malathion. Another compound, carbaryl, may retain its efficacy having been used much less since being restricted to prescription only status several years ago. When one considers the factors which determine and facilitate the development of resistance to xenobiotics, most are outside our control; it is a basic principle of evolution that organisms mutate and adapt to a changing environment. However, a number of factors which can determine the likelihood and speed of resistance development can be regulated if a concerted effort is made to regulate the supply and use of novel compounds from the outset. The UK, as elsewhere, experienced quite rapid onset and establishment of resistance, particularly to the pyrethroids, and this is likely to be due in part to the biology and behaviour of *Pediculus capitis*. An important factor when one considers the genetics of resistance is the volume of migration which takes place, which effects the likelihood of a mutation being "diluted" by mating with the susceptible wild population. The higher the probability of interbreeding within an isolated population the greater the chance a resistance gene will become fixed within it. Unlike houseflies, mosquitoes or cockroaches, there is limited migration to and from heads in pediculosis, which means the risk of selection of a mutant resistance gene is always likely to be higher. Under such circumstances it is vital that appropriate steps are taken to reduce those selection factors, which are under our influence. In particular, every attempt should be made to ensure pediculocides with new actives are only used in a manner, which ensures optimal mortality. Concentrations, application methods and contact times should never be sub-optimal. Residues should never be relied upon to compensate for poor ovicidal activity. Prophylactic use should be prohibited and over-the-counter sale restricted to encourage compliance, both of which increase potential for sublethal doses likely to exert pressure for selection of resistant heterozygotes. In the UK, such action could be taken by the regulatory body, the Medicines Control Agency. Although this is unlikely to prove popular with pediculocide manufacturers, it may be our best chance to extend the effective life of future compounds.