

Clinical evaluation of the Bug Buster kit for the control of head lice at the community level : Effectiveness, acceptance and sustainability

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Summary of Original Study

A single blind, randomised controlled clinical trial comparing the Bug Buster® Kit (BB) with conventional over the counter (OTC) pediculicides (Derbac-M®, 0.5% aqueous malathion or Lynclear®, 1% permethrin) was conducted in various sites across the UK. 133 children with confirmed active cases of lice were recruited through GP practices and randomised to either BB or pediculicide. No information other than that provided on the product was provided and treatment was carried out by the family in their own home following manufacturer's instructions. Success / failure was recorded by trained study nurses using wet combing with fine tooth comb on day 15 (BB) or 5 (pediculicide) post-treatment start. Study nurses were unaware of treatment used. Pre-study questionnaires confirmed no difference between treatment groups and that the study population was representative of the general population as a whole. Follow-up questionnaires were completed at endpoint and again at 3, 6 and 12 months.

Cure rates for BB were 57 % and for pediculicide were 13 % (malathion 17 %, permethrin 10 %) (relative risk: 4.4 [95%CI 2.3 – 8.5], $p < 0.0000004$).

All but one of the live lice collected from treatment failures were found to carry the T929I and L932F *kdr*-type resistance mutations of the para-type sodium channel gene. *Kdr*-type mutations are a common cause of high levels of resistance to a wide range of pyrethroid insecticides in many insect species.

All families taking part in the original study were followed up in person by field nurses or by postal questionnaire at 3 months, 6 months and 1 year.

Response rates were ;

3 months	91 %
6 months	72 %
12 months	31 %

Acceptance

	BB	Pediculicide
Was it easy to use ?	86 % Yes	92 % Yes
Were instructions clear ?	94 % Yes	82 % Yes
Happy to use again ?	96 % Yes	90 % Yes

Effectiveness

Treatment success under OTC conditions (use of product instructions only – no health professional advice) by family in their own home.

BB	57 % Cure rate
Pediculicide	13 % Cure rate

(Malathion sub-group)	17 % Cure rate)
(Permethrin sub-group)	10 % Cure rate)

Relative risk (BB:pediculicide) = 4.4 [95%CI 2.3 – 8.5], $p < 0.0000004$

Conclusions

The Bug Buster kit was the most effective means of treating head lice under typical OTC conditions. The method is more sustainable and cost effective than other treatments evaluated and acceptance is high.

Sustainability

Families were asked if any member of the family had had head lice since the completion of their study treatment (or since last questionnaire), and if so, what treatment had they used & why.

New cases of lice in 12 months -

BB group 29 % of respondents at least 1 case in family

Pediculicide group 31 % of respondents at least 1 case in family

BB group 97 % had re-used original BB kit as treatment
3 % had switched to pediculicide
Reason for 3 % switch = "BB too slow / difficult"

Pediculicide group 82 % had purchased another pediculicide
18 % had switched to BB
Reason for 18 % switch = "Pediculicide had not worked"

OTC Advice - Pharmacy Survey

In order to evaluate just how much advice is offered to people purchasing head lice treatments in the typical high street chemist / pharmacy we sent out our regional study nurses into local shops. Each asked at the counter for "something to treat head lice in my child", they purchased what was recommended and on leaving the shop made a note of any information they had received. To our surprise, of the 92 premises in 5 diverse regions of the UK included in the survey, only 7 (7.6 %) offered any reference to need to apply the treatment a second time. Ironically, a greater number of shops (8.7 %) recommended unlicensed (illegal) treatments based on essential oils. In the UK, chemists and pharmacies are generally considered to be a source of high quality health information, and yet our survey found several other alarming facts ;

Proportion of shops asking for / giving information on :

Have you used another treatment before / recently ?	6.5 %
Is child asthmatic ?	7.6 %
Advice to check success after use ?	4.3 %
Advice to check other family members ?	13.0 %
Shops displaying unlicensed products	34.8 %