

Malaria: Poor data on key mosquito control tool a threat to effective malaria prevention

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Despite wide acclaim as a successful policy there is currently almost no quantitative evidence showing how well spraying the walls of people's homes with mosquito-killing insecticide really works against malaria. This is the key finding of a new *Cochrane Systematic Review*.

The method, known as "Indoor Residual Spraying" (or IRS), has been widely used in the world since 1950. While it clearly works, it is impossible at present to quantify its protective effect. As a result, international agencies, donors and national programmes working on [malaria](#) control are not able to compare the benefits of IRS with any other approach.

"At a time of major investments into malaria prevention (over 500 million dollars in 2009) this is of great concern," says Prof. Christian Lengeler who works as an epidemiologist at the Swiss Tropical and Public Health Institute, in Basel, Switzerland.

In this regard, IRS has been a victim of its own success. Almost as soon as people started spraying the walls of their homes in the 1950s, they saw a marked drop in the level of malaria. Outstanding successes were recorded in Europe, Asia and the Americas. The benefit was clear, but no one stopped to quantify the impact.

In order to get a proper measure of impact, scientists need to divide an area with malaria into many small units, generally villages, and allocate randomly IRS to half of these areas, while the other areas remain as

controls - either without IRS or using another approach such as insecticide-treated mosquito nets (ITN). This systematic approach was only used in four out of the 143 studies ever done on IRS; these four were included in the review, together with two additional studies of different but adequate design. "Clearly, this is disappointing. With such a large body of evidence it is sad that so few of the studies provide high-quality scientific evidence. This represents a great waste of resources and efforts, and we are left with a very poor evidence base" says Prof. Lengeler.

The data from the six trials was consistent with the idea that IRS is successful in malaria-endemic populations, but the number of studies was too low to properly quantify that effect. There was an indication that ITNs, the other commonly applied vector control tool, may have a slightly better protective effect than IRS, but again the evidence was not good enough to be sure.

"Because we know that IRS works, it is no longer ethically possible to carry out studies with control groups that don't receive anything. Consequently, we urgently need more high-quality studies that compare IRS with the other widely implemented vector control method, ITNs." says Prof Lengeler.

Given the World Health Organization's 2007 decision to move towards world-wide malaria eradication, policy makers now also require good evidence on the combination of both IRS and ITNs. "Currently we have no evidence to show whether or not a combination would be justified both from the cost and the impact side and this needs to be urgently generated," says Lengeler.

Provided by Wiley

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