



## No change in global DDT use in recent years

**According to new research**, there was no substantial change from 2000 to 2009 in the global use of the insecticide DDT to control diseases such as malaria. Pyrethroids, another type of insecticide, are also widely used, but there are concerns that insects are developing resistance and insecticidal nets containing pyrethroids are becoming less effective.

**Insect control** is an important part of global strategies to reduce diseases including malaria, spread by 'vectors', such as mosquitoes. Since the 1940s the control of vectors has mainly relied on the action of chemical insecticides, including DDT. However, more recently the extensive use of insecticides, particularly pyrethroids for vector control has raised concerns over the development of insecticide resistance and negative effects on human health and the environment. The level of vector resistance to insecticides in Africa has been increasing, particularly against pyrethroid insecticides, which are the only chemicals approved to treat fabric used for long-lasting mosquito nets (LNs).

In 2004, the Stockholm Convention on Persistent Organic Pollutants<sup>1</sup> went into effect, emphasising the need for alternatives to DDT given its toxicity and persistence in the environment. However, it is uncertain how effectively the convention has met this objective and if there needs to be more international initiatives to try to limit the use of DDT.

The research assessed patterns from 2000 to 2009 in the global use of insecticides to control disease-related vectors, with the aim of providing a comprehensive assessment of global use patterns of vector control insecticides. It collected data on insecticide use from 125 countries which all had vector control programmes in place. Malaria was the disease most targeted for insecticides, followed by dengue, leishmaniasis and Chagas disease. Organochlorines, i.e. DDT, dominated the use in terms of quantity applied (71% of total) and pyrethroids dominated the use in terms of surface area covered (81% of total surface area sprayed with all insecticides). Geographically, South-East Asia used the greatest amount of DDT at 3623 tons of active ingredient per year, which is 82% of the global use of DDT. The remainder was used in Africa. The American region accounted for 56% of the global amount of pyrethroids used for vector control.

Global use of DDT was fairly constant from 2000 to 2009, indicating little impact of the Stockholm Convention on the use of DDT. India has shown a modest decline, but there was a sharp increase in Africa until 2008 owing to expanding programmes on indoor spraying. Since 2008, there has been a decrease in DDT use in Africa, but this has been accompanied by an increase in the use of pyrethroids.

Although pyrethroids did not constitute a major share of insecticide use, in terms of quantity applied per year (413 tons per year), it accounted for 81% of the surface area covered by active ingredient. However, this analysis did not include the use of pyrethroids to treat factory-made insect nets and the study suggests the inclusion of pyrethroids in factory-made nets could double the estimated use. The increase in pyrethroid use globally has major implications for the spread of insecticide resistance, which has a negative impact on the efficacy of this group of chemicals, e.g. when used in production of insect nets. The research suggests there is a need for insecticide resistance and potential harmful effects of insecticides to be integrated into vector-control programmes. There also needs to be more co-ordination between the public health and agricultural sectors, as both are important players in the use of insecticides.

1. See: [www.pops.int](http://www.pops.int)

**Source:** van der Berg, H., Zaim, M., Yadav, R.S. *et al.* (2012) Global trends in the Use of Insecticides to Control Vector-Borne Diseases. *Environmental Health Perspectives*. 129(4): 577-582. Doi: 10.1289/ehp.1104340. This study is free to view at: <http://ehp03.niehs.nih.gov/article/info:doi/10.1289/ehp.1104340>

**Contact:** [yadavraj@who.int](mailto:yadavraj@who.int)

**Theme(s):** Chemicals, Environment and health