Abstract

Indoor residual spraying with DDT was the principle method by which malaria transmission was eradicated or greatly reduced in many countries between the late 1940s and 1970s. Since then, decreasing use of DDT has been associated with a resurgence of malaria in India, Sri Lanka, former Soviet Central Asia, Zanzibar, Venezuela and several other Latin American countries. In India and Zanzibar, DDT resistance in vectors, as well as a decline in spray coverage, are probable causes of reduced effectiveness of DDT in recent decades. In southern Europe, eradication of malaria transmission was achieved by DDT spraying in the 1940s and 50s and eradication has been sustained by adequate treatment of imported human malaria cases. In the highlands of Madagascar and South Africa, recent reversion to DDT spraying has been successful in stemming resurgences of malaria. Continued use of DDT for vector control, but not for agriculture, is approved by the Stockholm Convention on Persistent Organic Pollutants. DDE residues in breast milk have been associated with DDT anti-malaria spraying in South Africa, but it is not known whether this is harmful. A claimed association of DDE residues with breast cancer has not been substantiated. There is a recent report of association of DDE residues with probability of premature birth; the possible relevance of this to anti-malarial use of DDT should be investigated. In Colombia, testing of the DDT stockpile for suspensibility, DDT resistance in Anopheles darlingi and investigation of the present affordability of widespread spraying with DDT, compared with alternative chemicals, are recommended.

Keywords

indoor residual spraying, malaria eradication, malaria resurgence, DDT resistance, DDE in breast milk, DDE and breast cancer, DDE and premature birth, suspensibility of stockpiled DDT