

Pesticides Levels in Commercial Aircraft

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Disinsection, or spraying of insecticides on the surfaces of commercial aircraft has been mandated by a number of countries since the 1970s to prevent the transport of insects which can pose health threats. The spraying insecticides while passengers are on board and to provide a residual on surfaces can lead to exposing passengers and crew to these agents. While health safety reviews of the pyrethroids used done by WHO several years ago have typically suggested that they do not present health risks at the application rates used in aircraft, newer toxicological and epidemiological studies are suggesting that pyrethroids can cause adverse health outcomes at lower concentrations than previously thought. To examine potential inhalation and dermal exposure a wipe sampler to collect pesticide samples from surfaces within the aircraft cabin was developed and used to collect samples from both domestic and international flights, a controlled pesticide spraying was done within a "mockup of a 737" and HEPA filters removed from in use aircraft were analyzed with funding received from the FAA ACER Center. Pesticides were only detected on a single sample at very low levels from seventeen domestic US flights predominantly on routes in the southeastern US, However, permethrin was present on many international flights mostly at or below the levels recommended by the WHO. These included flights into and out of countries that mandate treatment but also to countries where maintenance is done that appears to include residual disinsection of planes. In addition, some planes that traveled on routes that that did not include countries requiring disinsection for the legs of the flight taken but likely travelled to countries that required disinsection at some time had measurable levels of permethrin. This included the US. Permethrin was also identified on about half of the hundred HEPA filters analyzed suggesting that small amounts do enter the cabin air of aircraft. Pesticide air concentrations were readily measurable during spraying in the mockup aircraft and for several minutes after the spraying was completed. We are currently conducting a full exposure and risk analysis associated with potential pesticide exposure.

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