**Epidemiology and exposure studies specific to pyrethroid insecticides: a quality based review**

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Literature Search

An initial PubMed literature search was conducted on February 15, 2016 using the following key words ((pyrethroid OR pyrethrin) AND (toxicology OR epidemiology)), resulting in 1,173 citations. Another search using PubMed was conducted on October 21, 2016 and identified 2383 publications. Other filters included English language and excluding article type: Meta-Analysis; Review; Systematic Reviews.

A Boolean keyword search included the following string: ((((((((((((((((((((((((((pyrethrin) OR pyrethroid\*) OR allethrin stereoisomers) OR bifenthrin) OR beta-cyfluthrin) OR cyfluthrin) OR cyphenothrin) OR deltamethrin) OR esfenvalerate) OR etofenprox) OR fenpropathrin) OR tau-fluvalinate) OR lambda cyhalothrin) OR gamma cyhalothrin) OR imiprothrin) OR 1RS cis-permethrin) OR permethrin) OR prallethrin) OR resmethrin) OR sumithrin) OR d-phenothrin) OR tefluthrin) OR tralomethrin) OR zeta-cypermethrin) OR cypermethrin) OR tetramethrin)

The Boolean second term or strings included: Pregnancy; Autism; Hormone\*; Sperm\*; Respirat\*; ((child\*) AND health); ((immune system) OR immune\*); Epidemiology

The comprehensive search identified 2,383 publications from which publications that were older than 2000 were removed because these older studies were not epidemiology studies specific to pyrethroids. Most addressed effectiveness, exposure assessment or were animal studies. Also removed were publications that did not include an abstract since their topical area could not be evaluated. This resulted in 767 publications, which were sorted into groups by type of study. We evaluated all studies from both searches based on the title and abstract and selected studies for relevance. The bibliographies of review publications were also searched for additional studies.

Supplement Table 1. Papers that were not reviewed

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| **Number** | **Author, year of publication** | **Outcome examined** | **Comment** |
|  | (Amer et al. 2002) | Skin tests, and miscellaneous outcomes |  |
|  | (Appel et al. 2008) | Skin irritation in military | Permethrin impregnated battle dress |
|  | (Azmi et al. 2006) | Self-reported symptoms, chronic | Not much more than a case series for farm workers in Pakistan |
|  | (Chen et al. 1991) | Self-reported symptoms, acute | Pyrethroid spray men interviewed after application, China |
|  | (Franzosa et al. 2007) | Type 1 skin hypersensitivity, acute | Review |
|  | (Furlong et al. 2015) | Parkinson’s disease in applicators | Analysis of the AHS, following Kamel, et al., |
|  | (Hansen et al. 2014) | Levels of hbA (glucose regulation/pre-diabetes) | Pesticide applicators |
|  | (He et al. 1988) | Self-reported symptoms, acute | Chinese packaging workers |
|  | (Hudson et al. 2014) | Self-reported symptom, acute | Case series from poison reporting SENSOR |
|  | (Kamel et al. 2007) | Parkinson’s disease in applicators | Analysis of the AHS |
|  | (Kesavachandran et al. 2009) | Nerve conduction velocity | shopkeepers |
|  | (Kilburn 2004) | Neurobehavioral function, pulmonary function, mood | airline flight attendants |
|  | (Kim et al. 2015) | Adult Cognition (dementia)  | NHANES |
|  | (Kimura et al. 2005) | Nervous system tests | Tobacco farmers |
|  | (Lafiura et al. 2007) | Incidence of t(8;21)  | Cypermethrin in meconium samples |
|  | (Motsoeneng and Dalvie 2015) | Neurotoxic symptoms  | Women on farms in South Africa |
|  | (Ofordile et al. 2005) | Mortality due to infectious diseases | This is a quasi study/editorial |
|  | (Sutton et al. 2007) | Acute symptoms in flight attendants | From the SENSOR program in California |
|  | (Wang et al. 2011) | Glucose regulation/pre-diabetes | Occupational exposure |
|  | (Zhang et al. 2013) | Serum levels of thyroid hormones, fT4, TSH, TBG, in adult women | No statistically significant associations were observed for 3-PBA and the 3 hormones. |
|  | (Zhang et al. 2014) | Neonatal hormones T4, FSH in infants (3-4 months)  | No significant associations were reported for the neonatal hormones fT4 and TSH and 3-PBA levels. |

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