Australian Work Exposures Study (AWES): Polycyclic aromatic hydrocarbons

The issue

Polycyclic aromatic hydrocarbons (PAHs) are a group of chemical compounds formed during the incomplete combustion of organic material. Some PAHs are considered to be carcinogens by the International Agency for Research on Cancer but limited information is available on exposures to PAHs in Australian workplaces.

The study

The Australian Work Exposures Study (AWES) asked 5023 about common work tasks which could expose them to carcinogens. The AWES data were analysed to provide specific information on exposures to PAHs.

Who was exposed?

About six per cent of workers who participated in the AWES were likely to be exposed to PAHs at work. About forty percent of these workers worked in the Agriculture industry.

Table: Occupations of AWES respondents likely to be exposed to PAHs

Occupation	Number	Per cent
Managers	99	33.3
Professionals	38	12.8
Technicians and trades workers	68	22.9
Community and personal service workers	43	14.5
Machinery operators and drivers	17	5.7
Labourers	30	10.1
Total	297	100.0

Note: Numbers do not add to the total (nor percentages to 100) because respondents from occupation categories with less than three workers or whose occupation could not be determined are not shown.

Based on AWES results about 675 000 Australian workers might be exposed to PAHs when performing common work activities.

What tasks were they doing?

The main tasks associated with likely exposures were burning waste, repairing combustion engine powered equipment, cleaning out ash from fire sites, health workers exposed to diathermy smoke (smoke arising from cauterisation during surgery), cooking, and fighting fires and fire overhaul and clean-up.

What were the exposure assessments?

Exposure levels were assessed as being high or medium for about two thirds of reported tasks.

Exposures to PAHs were considered to be high during activities like fire fighting, back-burning, burning waste, or clearing ash.

Exposures to PAHs when repairing power mowers or other equipment were considered to be medium.

Exposures to smoke from cauterisation, cooking, or welding coated metals were considered to be low.

Limitations

Because the AWES is a population-based survey it only provides information on relatively common activities. Not included in the study sample are tasks undertaken by small numbers of people or less common occupations viewed as having high PAH exposure.

Key messages

Most workers exposed to PAHs will not develop cancer from these exposures but they have an increased risk of doing so.

Many exposures to PAHs are preventable. Preventative efforts should focus on encouraging employers and workers to use effective ventilation and suitable personal protective equipment when:

- burning wastes
- cleaning out ash from fire sites or furnaces
- fighting fires or back burning, or
- repairing motors.

More information

An executive summary and the full report which this brief is drawn from can be found at Australian Work Exposures Study (AWES) - Polycyclic aromatic hydrocarbons (PAHs) report webpage.