A critical review of the national exposure database (NEDB) in relation to investigating trends in exposure

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ABSTRACT

Health and safety legislation in the UK is centred on risk assessment and risk management. Exposure assessment, which may involve personal exposure measurements, is essential at every stage of these processes. It is important to make use of the available exposure data by storing exposure information in a computer database.

Accurate and reliable exposure information is of vital importance to the Health and Safety Executive (HSE). The HSE set up its National Exposure Database (NEDB) and the value of the database is dependent upon the quality, breadth and volume of the exposure data and the qualifying information stored.

Little work has been carried out within HSE to investigate whether the information held within NEDB on chemical exposure could be used as evidence of any long-term change in exposure to hazardous substances in the workplace.

The feasibility of using the data within NEDB to identify trends in exposure and the effects of the changes in regulation and initiatives on these trends was investigated. The project was executed by investigating sampling strategies and methods for data collection over time through a questionnaire and by using a pre-determined set of criteria to evaluate the overall quality of a substance exposure data set, to then investigate trends of exposure for various quality categories.

The methods of sampling strategy and data collection used across all the HSE hygienists were found to be consistent. The Respirable Crystalline Silica substance data set comprised of 2,254 analyses collected from 1985 to 2000. There was a declining trend over time in the number of analyses collected, with 90% of results collected from 1985 to 1992. The quality of NEDB data is generally good and increasing over time although for certain industries and occupations a large proportion of data was deemed unusable.
due to the lack of supporting contextual information. The analysis of trends was only feasible for particular industry sectors, namely the quarrying industry.

The use of the NEDB exposure data as a data source to facilitate the HSE to evaluate whether the future targets are being met for chronic ill health caused by hazardous chemical substances is questionable if HSE does not dramatically increase its capacity for collecting occupational exposure data in the future, ideally working within a focused central strategy.