

Retrospective Occupational Exposure Assessment

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Issues

Reconstruction of past exposures

Several Sources of Exposures

Reliability of data

Ventilation and other Controls

Reliability of the evidence presented

Fallacies



Reconstruction of Past Exposure

Reliable data: Peer reviewed, published

Detailed description of tasks
at the time of exposure measurement

Difficulty in assessing cumulative
lifetime exposure



Several Sources of Exposures

The sources may not be distinguishable

Synergistic effects

Occupational vs. Environmental
Hobbies



Is the estimate based on reliable data?

For an industrial hygienist to estimate reliable exposure data

One way is to have atmospheric air samples taken and analyzed at the time of the toxic exposure to certain workers.

The second way to collect reliable data is to obtain information based on:

- ▶ detailed description of the activities; and
- ▶ work conditions at the time of the exposure,



Factors For Retrospective Exposure Assessment

Work history

Are data available for all types of worksites?

Ventilation

Respirators

Breaks



Scientific Reliability of the Evidence

Scientific evidence must be based on a principle that supports what the hygienist purports, and

There must be a showing of another type of validity - the production of compatible results from successive applications of the principle.



Scientific Reliability of the Evidence (contd.)

whether the theory can be tested, whether the theory has been tested in the past.

whether the theory has general acceptance in the scientific community.

whether it has been submitted to peer review.



Scientific Reliability of the Evidence (contd.)

With respect to **asbestos** exposure studies, there has been extensive usage of retrospective exposure estimation, thereby making it a valid methodology based on its accepted scientific reasoning.



Scientific Reliability of the Evidence (contd.)

If there were data at every work site for every exposure scenario, there, of course, would be no need for a scientific retrospective analysis.



Fallacies

Dose-Response

Area versus personal sampling

Latency

Expertise and hands on experience



Conclusions

Retrospective Exposure Analysis (REA) has been recognized in the scientific literature for the last 25 years.

REA is gaining in popularity in the personal injury cases. A proper appreciation of its usefulness and shortcomings is a must for industrial hygienists



Conclusions (contd.)

REA is reliable if the methods used are supported in many scientific papers.

This methodology had been used extensively by industrial hygienists for, not only epidemiological studies, but also single case exposure studies, of many hazardous substances.



Thanks



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