

HISTORICAL PERSPECTIVE ON INTER-INDUSTRY VINYL CHLORIDE STUDY

- 1960-1963 Report published documenting anesthetic effects in animals and humans and liver injury in animals from chronic exposure.
- 1967 *clubbing of fingers*
Acroosteolysis reported in humans exposed to high levels of VCM.
CMA study
- 1971 Carcinogenicity of VCM discovered in animals, including angiosarcoma of the liver.
rare liver tumor
- 1973 CMA sponsors Tabershaw-Cooper Associates to conduct an epidemiologic study of 8,384 vinyl chloride workers from 34 plants.
- 1974 First reports of angiosarcoma of the liver cases in VCM workers.
BFG at Kentucky
- 1974 Tabershaw-Cooper report preliminary results confirming high risk of angiosarcoma of the liver and suggesting excess cancers of respiratory system, brain and lymphoma.

HISTORICAL PERSPECTIVE ON INTER-INDUSTRY VINYL CHLORIDE STUDY

(cont.)

1974 OSHA holds hearings and revises
PEL down to 1 ppm.

1981 Cooper expands original
epidemiology study to include
10,173 workers from 37 plants--
reports show angiosarcoma and
brain cancer to be in excess through
1972.

1986
Ensr

No new results →
published 5 years
later ↓

Environmental Health Associates

EHA updates inter-industry study
with follow-up through 1982--
reports angiosarcoma, brain cancer
and emphysema to be in excess--no
excess respiratory cancer or
lymphoma/leukemia.

1991 EHA study is published. *Summarized version*

1993 CMA letter to the editor and EHA
response are published clarifying the
brain cancer and emphysema
findings.

1994 CMA Vinyl Chloride Research
Coordinators meet to discuss updating
study.

*Now have 10 more
years of data...
follow same workers
10 years later.*

GGB 3/15/94

RESTRICTED FOR USE WITHIN DOW
AND DOW SUBSIDIARIES

R&S 142862

“The study carried out by Environmental Health Associates on behalf of the U.S. Chemical Manufacturers Association is the largest and most informative investigation thus far undertaken.”

Sir Richard Doll
Scand J Work Environ Health 1988;
14:61-78

BENEFITS OF UPDATING INTER-INDUSTRY STUDY OF VINYL CHLORIDE WORKERS

- Goodwill
 - Demonstrates to workers, community residents, customers, and other audiences our collective commitment to characterize any health risks posed by operating VCM/PVC processes.
- Scientific Knowledge
 - Refines the estimate of the number of cases of human angiosarcoma of the liver (ASL) associated with operating VCM plants in the pre-1972 era.
 - Contributes ASL cases to the international registry.
 - Helps to resolve unanswered questions about alleged links to cancers of the brain, lung, and hematopoietic system as well as address other causes of death such as emphysema.
- Litigation Defense
 - VCM/PVC manufacturers continue to face toxic tort litigation alleging numerous types of cancer are related to VCM/PVC employment. This type of research is useful in defending such litigation.

150+



BENEFITS OF UPDATING INTER-INDUSTRY STUDY OF VINYL CHLORIDE WORKERS

(cont.)

- Chlorine Issue
 - VCM/PVC continue to be a part of the general debate on health and environmental impacts of chlorinated organics. This type of research serves a valuable role in helping to debate the issues on the basis of good science.

FUTURE VCM/PVC RESEARCH OPTIONS

- What has been the impact of the 1974 PEL reduction on the incidence of ASL and other cancers among VCM/PVC industry workers?
- Are there biomarkers of VCM exposure which could be used to better quantify worker exposures for future research into dose-response relationships?
- Besides cancer, are there other health effects one should be concerned about (i.e., fertility reproductive and developmental effects, endocrine effects, immune system, nervous system, other)?
- With recent allegations of dioxin formation in the EDC/VCM process, are there additional health research studies needed?