

Questions & Answers

for employees of Vista Chemical Company's
Lake Charles VCM Plant
in response to employee questions
at the July 14 meetings

Q. What will Vista do if another brain tumor is found?

A. We will continue to communicate with you regarding what we are currently doing in response to the recent employee health problems and concerns. We believe our current efforts are the right ones to address the present situation. Another brain tumor in the near term would certainly add emphasis to our efforts. However, it must be stressed that the recent brain tumors are not known to be related in terms of type or origin.

Q. Have we talked to other vinyl plants?

A. Dr. Jack Drumwright, Vista Medical Manager, is discussing current health events with other chemical company medical directors to determine if other chemical companies are experiencing any brain tumor incidents, how they were discovered and what was done to respond to them. Vista also belongs to the Vinyl Institute and the Chemical Manufacturers Association. Those are industry groups that sponsor studies of workers and promote safety and health practices in the industry. Any pertinent information obtained will be shared with employees.

Q. Will Vista study our group, the LCVCM Plant?

A. We are currently attempting to review the medical and health records for employees and past employees known or suspected to have had cancer. Employees at the plant are providing us names and Dr. Drumwright is attempting to find their records. This may be difficult because some records are with Conoco and others may be held by private physicians. The matter of medical confidentiality and potential need for releases to obtain the information may slow the process.

The plant population was included in the CMA study, which is in the literature binder available at the plant. At this time, no decision has been made regarding further studies.

Q. How long will it take to answer our questions?

A. We cannot tell you exactly how long it will take to address and resolve all of the issues raised by the recent employee health problems. Addressing your concerns and resolving the issues is a priority item with plant management and Houston staff. We have ordered relevant scientific papers not in our files to

place in an accessible location at the plant. It is anticipated this should be completed in early August with additions made as papers are received.

Dr. Drumwright is actively pursuing the issue of medical screening for brain tumors:

Q. Based on the potential inaccuracies of death certificates, how can epidemiological studies be accurate?

A. Many epidemiological studies are based on mortality (death rate) from a disease. This is done for several reasons, but in general, deaths are well defined, consistently recorded, and the records are typically available. In many cases, mortality studies are the only feasible type of study to do, especially for chronic diseases with long latency periods, such as cancer.

However, the cause of death on death certificates is indicative of a judgment on primary cause of death and may or may not list complicating factors at the time of death, such as brain tumors. This may result in an underestimation of a particular cause, or an overestimation, such as a brain tumor that was due to a lung cancer metastasizing (spreading) to the brain.

The result of any epidemiological study must be viewed with caution based on these potential problems, and efforts made to be as thorough and accurate as possible when reviewing records.

Q. We don't care about studies with thousands of workers. Why don't you study us?

A. A study of only the VCM plant, or even the VCM plant and our PVC plants, would involve a very small population and the results would probably not be conclusive. Studies done to determine the relationship of a disease or cause of death must have an adequate sample size to assure that any differences, or excess, seen in death rates or disease rates, are not random occurrences, but are truly different from what the normal, or unexposed population would have.

The reason for this is explained by two fundamental statistical concepts that define the needed sample size (population studied) and power of the study, which is the probability of detecting a real difference in disease rates. The smaller the population studied, the less chance you have of detecting truly different disease or death rates.

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Q. What do we know about EDC/TARS exposure effects?

A. Quite a lot is known about EDC short and long term exposure effects. Detailed information is available to you through your plants hazard communication program and the Material Safety Data Sheets (MSDS). A summary follows.

EDC is a central nervous system depressant and causes damage to the liver and kidneys. Short-term exposure to high concentrations of EDC is characterized by anesthetic effects as well as by headaches, dizziness, nausea and vomiting, weakness, trembling and stomach cramps. Severe exposure causes coma and death from respiratory and circulatory failure. Animal studies, mostly in mice and rats, have established carcinogenic effects in rodents. EDC may be absorbed through the lungs, skin and gastrointestinal tract with resulting liver and kidney damage.

Q. Can EDC and TARS be carried home on my clothes?

A. Yes, under some conditions. Avoid contact with EDC by wearing protective gear and remove soiled clothing that is contaminated with ethylene dichloride (EDC). EDC is volatile at room temperatures and will evaporate rapidly. EDC does not remain in the air for very long. There is, however, a higher potential for significant amounts of EDC to remain in impregnable surfaces such as shoe leather. That is why only certain types of composition shoe soles are permitted for plant workers. EDC has a very distinct odor at low levels. Many people smell it at 3 ppm or less. Its odor is a good warning property. Contaminated clothing should be properly stored until cleaned or destroyed, which will depend on the situation. Shoes with contaminated uppers should always be destroyed.

The danger with "TARS" is very similar although TARS are heavier in nature and may evaporate more slowly. The potential for TARS contaminated clothing to cause chemical burns or slowly release vapors into a storage area is even greater than that for EDC. Contaminated clothing should be professionally cleaned or destroyed, depending on the situation.

Q. Can't one molecule of a carcinogen cause cancer?

A. This question cannot be answered with a simple yes or no. There is much scientific debate over what level or dose of exposure to a carcinogen will result in cancer. Most toxic chemicals have a threshold level below which no effects are known to occur, or their effects are reversible. This is based on our knowledge of how the body "handles" the chemical and the way the toxic effect occurs.

However, we do not know as much about the way carcinogens cause cancer, and cannot say for sure if a threshold exists, or if one exposure can cause cancer.

There is clear evidence that the potential for cancer to occur is reduced when overall exposure is reduced.

Q. A film shown in 1972 said glioblastomas were a result of VCM exposure. Has this changed?

A. We cannot find the film mentioned in the employee meeting. Before 1974, there was little, if any, information available regarding the chronic human health effects of vinyl chloride. Even in the 1974-76 period, when VCM became strictly regulated, the information available was mostly about the incidence of liver cancers, specifically angiosarcomas.

Brain tumors, or glioblastomas, have been found in various studies of vinyl chloride exposed workers. The evidence showing the relationship between VCM and these tumors is conflicting.

Q. Haven't more than 100 angiosarcomas been found in workers exposed to PVC and VCM?

A. There is a worldwide angiosarcoma register kept. On this register there are currently 138 cases that have been reported. Thirty-eight of those are from the United States. Conoco Chemicals and Vista had none to report.

Q. What about HCl and chlorine effects?

A. Detailed information regarding the health effects of these chemicals can be found in your plant's hazard communication program.

In summary, both of these chemicals are severe irritants to the eyes, skin, and upper respiratory tract. Irreversible tissue damage can occur as a result of short exposure to high concentrations. The strong irritant properties serve as a good warning and, in general, prevent long-term exposures. Many people can detect the odor of chlorine and HCl at levels below 0.5 ppm.

Long-term or repeated exposure to chlorine and HCl may cause corrosion of the teeth, chronic irritation of the skin, and chronic lung damage.

Q. Are EDC releases and exposures reported to OSHA?

A. No. There is no specific requirement to report EDC releases or exposures to OSHA. The VCM standard requires reporting "emergency exposures", under certain conditions, to OSHA but there is no such rule for EDC.

If five or more people are hospitalized as a result of EDC exposures during an emergency, a report to OSHA is required.

Q. Why don't you document high EDC exposures like you do VCM exposures?

A. We do not document EDC exposures exceeding
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the permissible exposure limit with a letter to the employee as we do for VCM. However, it is routine for the plant to investigate over-exposures and emergency releases for all chemicals, including EDC. EDC exposure records are maintained in the same manner as VCM exposure records.

As a result of the company's investigations, information is developed and kept regarding those people that had high exposure during any emergency.

Q. Do studies look at the total number of employees exposed or total number of employees at the plant?

A. Each study is done differently. However, in general epidemiological studies attempt to look at exposed populations and not all employees at a plant site using that chemical. The vinyl chloride studies that are available have looked at various plant populations and generally attempted to include only exposed or potentially exposed workers.

Q. Do the chemicals here, VCM and EDC, have a cumulative effect?

A. VCM and EDC are metabolized by the body and eliminated through various routes. They are not known to accumulate in body tissues the way lead does, and exert effects as a result of remaining in the body.

Q. Since Ross & Fogleman are the reason for this meeting will there be a study of their work habits?

A. If we decide to do further studies of the LCVCM plant employees, this may be a part of the study. At this time that decision hasn't been made.

We do know that in the early 70's, the exposures at the plant due to general work practices were higher than they are today.

Q. Are two brain tumors in a short-time in a small group like ours indicative of a problem?

A. We don't believe so, especially not when they are of different types. Also, both are found in the general population and are a "common type".

Q. Would the problem Dan Ross had show-up on the van chest X-Ray?

A. No.

Q. Did Dan Ross' cancer spread from another site?

A. Medical information available to us does not indicate any spreading.

Q. Can different people get different cancers from the same exposure to the same chemical due to individual differences?

A. Yes. Every individual has a distinct biochemical make-up. These individual biochemical differences can result in different responses to toxic chemicals or other stresses. Individual susceptibility can also vary due to such things as genetics, race, diet and age.

Q. Did Mr. Fogleman have any apparent signs/symptoms from the van exam?

A. Several health problems were noted in the last exam, but were believed to be unrelated to his brain tumor. However, it is believed that his cancer was a rapidly growing one which developed since the last van exam.

Q. Is Vista looking at any other tests besides Cat Scans?

A. Yes. However, there are no known direct screening methods to detect brain tumors. There are tests available that measure central nervous system dysfunction which may indirectly indicate a brain tumor. We are evaluating the usefulness of the available tests.

Q. Are there brain tumors at Oklahoma City and Aberdeen?

A. One has been seen at Aberdeen in the past. This tumor did not originate in the brain but spread from another site. This tumor occurred prior to 1984.

Q. What about the causes of death among children of employees? Will you look at those?

A. We will look at all data presented to us if appropriate releases are also provided for these family members.

Q. What are the types of cancer Ross & Fogleman had?

A. According to the information available to us Ross' cancer was Glioblastoma Multiforme (astrocytoma) and Fogleman's was Adenocarcinoma (metastatic).

Q. Will you get more info on Ross & Fogleman?

A. We hope to, but this depends on the employees' wishes and approval.

Q. Why isn't a Cat Scan part of a routine physical for us?

A. The Cat Scan is not a routine screening test. It is a very specific diagnostic test ordered after consultation with the appropriate physician and based on symptoms and medical findings.

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Q. What are possible signs and symptoms of a brain tumor?

A. The location of the tumor within the central nervous system) and its biologic behavior determine the way the patient's signs and symptoms are presented. When a tumor grows slowly in a "silent" area of the brain, it may first cause a headache, nausea, vomiting, alteration in personality or changes in the level of consciousness due to increased intracranial pressure.

A tumor within the speech or motor areas may cause general weakness, or dysphasia, long before other signs or symptoms are present.

Q. When used as a follow-up to signs and symptoms, can Cat Scans always detect tumors?

A. CT scanning provides the ability to visualize the central nervous system and possibly the early diagnosis of tumors. The addition of IV or IT contrast material has increased the detection of hidden tumors.

Tissue diagnosis of intracranial tumors is required before beginning therapy. Despite the increased sensitivity of current imaging techniques, many diseases - including tumors - may not be detected by this method.

Q. Does cigarette smoking cause brain tumors?

A. There is no confirmed link between cigarette smoking and primary brain tumors. However, cigarette smoking is well known to contribute to lung cancer which can frequently spread to the brain. Also, cigarette smokers in general have a higher susceptibility to many diseases.

Q. Why do Vista blood results use higher normals for comparison?

A. Ranges used for comparison are guidelines only, and vary between laboratories due to different instruments, methods, etc. It's important to remember that the normal ranges developed and reported by any laboratory are scientifically developed and reviewed by independent accrediting organizations. Also the normal ranges are based on data from different populations and regional differences may be seen.

Q. Why do the van testing results take so long to get?

A. Vista's medical department is notified immediately of any significant abnormalities found in the test results. Dr. Drumwright then notifies employees.

The full report is generally provided to the employee at the time of the hands-on portion of the exam. However, if an individual wants his prior to that time, he or she can be provided with the report when it is first available from Health Examinetics. This is usually a 4-6 week time-frame.