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Submission date: 11-Feb-2020 04:37PM (UTC+0800)

Submission ID: 1255376995

File name: Healthcare.docx (21.18K)

Word count: 1179

Character count: 5974

Running head: COAL MINING CASE STUDY

Case study Questions

Institutional Affiliation

Student's Name

Date

Part 1

1. Mary Beth's hometown can be considered a high-risk area. If I were a resident of this area I would have raised various concerns relating to the safety of the individuals residing nearby. First I would ask questions concerning the health risks associated with the stained pools, the possibility of acquiring diseases from the contaminated open pool. Other questions would revolve around the possibility of acquiring gastric cancer due to the consumption of the water from the pools.
2. I would particularly address my concerns to the government bodies particularly those concerned with ensuring health safety is maintained concerning inhaled toxic objects as well as exposure to high-risk areas. To obtain answers regarding my answers, I would recommend for research projects to be carried out in the area to ascertain the truth and bring out what needs to be known.
3. The color of the water could have been due to the various contaminants that were present in the sulfur creek possibly obtained from the mining activities.

Part Two

1. Black lung sickness is triggered by prolonged also continued breathing of coal excavation powder; this accumulation of petroleum mine dirt in the lungs is what causes the gloomy and pink coloration on the lungs. The period required for the coal dust to affect the human lungs is about 50 years.
2. Energy powder is a bodily toxicant, this is as the specks of dust have a physical nature and subsequently can interfere with the respiratory processes in case of inhalation. The toxicant affects the biological processes physically without the involvement of a chemical process.
3. Coal dust can be regarded as a targeted toxicant since it only affects specific parts of the body.

Part three

1. I disagree with Mary Beth regarding the digit of disease cases in her highway to be a matter of coincidence, this is because, considering the nature of the area she lives which is considered as a high-risk area, the high number of cancer cases are attributed to the coal dust pollution in the area and the sulphuric contamination.
2. To effectively evaluate the cases of cancer in Beth's street, I believe information regarding the amount of exposure to the coal dust would be needed to determine whether the cases are related to coal dust pollution.
3. Carcinogenic products connected to coal excavating comprise coal grime and sulphur; the possible ways of contact comprise breathing of dusts and over drinking and consumption of contaminated water.
4. Logical goal tissues for cancer associated petroleum excavating is the structures that are the high danger of cancer infection as a result of coal mining exposure. An example of these organs includes; kidneys, skin, and lungs.
5. Particulate materials from the coal mining areas when exposed to the human skin over some time have been found to cause changes in the epithelial layers of the skin.

Part Four

Epidemiology

1. One of the strengths of the study was that it was able to cover a large number of people in the affected area regarding exposure to the risks of acquiring cancer-related illnesses. The study, however, has one major weakness in that the researchers have no control over the population and the exposures under study.

2. Concerning Beth's question, I believe the study could have provided an accurate answer to whether the prevalence of cancer in the region could have been related to coal mining.

One weakness could have been that that understudy could have moved from one exposure category to another leading falsified information.

Toxicology

1. The main strength of this study was that it would determine the main target organ by the toxic agent using present data hence helping in preventing disease occurrence. However, the study had some weaknesses such as incomplete records regarding exposure.

2. In answering Mary Beth's questions, I believe and hope that this study could provide conclusions and results about drugs and the development of safer workplaces for the miners and even maintenance of a safe environment for the residents.

Part Five

1. The information that was already known was that coal mining was associated with cancer however the research had intended to recognize which aspects might be related per suitcases who exist in these high-risk zones, and most exactly if particulate coal dust contacts could as well be associated with these risks.

2. The research revolved around the research question of whether there was an association between the deaths of nonsmoking coal miners and smokers who were not coal miners. The approach used by the researchers was to expose rats in coal dust during about 24 months coupled with the use of humans were both smokers and worked in the mines as well nonsmokers who worked in the mines.

3. Rats were used in this study because I believe it was easier to have them exposed to the coal dust for 24 months that the research had required as opposed to humans.

4. The controls in this study were the age differences, amount of exposures and exposure concentrations.

5. The orderly random selection pattern was castoff to capture digitized imageries of the exposed lungs by means of a 3-chip CCD camera to enable the researchers to observe the amount of soot retention by the lungs of the different groups. Other methods included observation and interviews.

6. Considering that the lungs of the drillers were immovable a constant hydrostatic force, the variances in the amount of increase could have exaggerated the consequences for the comparative volume masses

7. The figures in the article mostly indicate the difference in lung retention of the coal dust among the different groups of organisms. Fig 1 Indicates lung sections of rats exposed to diesel exhaust, one of the images indicates a high concentration while the other shows a low concentration. Fig 2 shows the number of particulate materials situated in the interstitium between small quantity miners and great dose drillers.

8. The findings from this study indicated that frequently breathe in diesel smoke is reserved in the air sacks of pests over an extensive array of disclosures whereas in people, the breath in particulate factual is retained in the interstitium and these materials increase with the increase in contact concentration, years of coverage and lung load. (Evidence found in Fig 1 and 2)

9. The authors have indicated that the structural variances between mice and individuals could upset locations of long term unit retaining.

10. In the future, I believe the authors could decide to use a single species of organisms with the same anatomic structure to obtain an improved result.

11. I believe the authors answered the question that they wanted to answer since they found that that the deaths were more likely associated with coal dust exposure over the long term.

Part VI

1. I fully agree that Mary Beth, her mother's cancer could have as a result of the coal mines however due to reduced exposure during treatments and the subsequent precautionary measures undertaken by the doctor, she had started recovering, unlike Mary's dad.

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