Inhaling ethylene oxide gas during sterilization work in a hospital

[Description of Incident]

The victim suffered from poisoning by inhaling residual ethylene oxide gas in a sterilization chamber during the work to sterilize beds, etc., by using the sterilization and drying equipment in a hospital.

The victim went to work around 7:00 a.m., removed sterilized items from the chamber in sterilization and drying equipment, set new items to be sterilized in the chamber, closed the chamber door, opened a gas value, and turn on a switch to start the operation. This sterilization and drying equipment started automatic operations with settings of eight hours for the sterilization process and six hours for discharge of residual gas after the process.

Around 5:00 p.m., the victim went to the sterilization room to start sterilization work for the next items. At that time, one hour had passed after the equipment was switched to residual gas discharge operations.

Because the victim believed that manually stopping the equipment during the residual gas discharge process can discharge ethylene oxide gas more quickly than under automatic operations, the victim opened the operating panel and turned off the exhaust timer switch. As this stopped the ventilation fan and overall equipment operations, the victim opened the chamber and started to replace the items to be sterilized, during which the victim inhaled residual ethylene oxide gas.

[Causes supposed]

1. As the equipment operation was stopped after one hour had elapsed since the equipment was switched to the residual gas discharge process, ethylene oxide gas still remained in the sterilization chamber.

2. As the victim opened the sterilization chamber that still contained ethylene oxide gas, the victim inhaled ethylene oxide gas remaining in the chamber.

3. The victim did not assume that the gas would be remained and he failed to use protective equipment.
4. The victim stopped the equipment in the middle of automatic operations without knowledge and experience.

5. Instrument to detect residual gas in the chamber was not installed.

6. No particular operator was designated for the equipment operation, and education/training based on the operating manual was not provided for those engaged in the sterilization work.

[Type of business] Hospital
[Caused by] Harmful substances, etc.
>Type of accident] Contact with harmful substances, etc.
[Number of victims] One injury (requiring an absence from work)