

Organophosphate Exposure

In August an incident occurred with a Post Doc in a research lab on campus which provides a good opportunity for teaching others. The individual was working in the evening by himself synthesizing an organophosphate, an extremely toxic material. An exothermic reaction occurred, sending material splattering out of the fume hood. The individual was wearing a lab coat and safety glasses; however, some material reached his face and entered his mouth. He washed thoroughly and went home without informing anyone of the incident. After he was home for some time, he started to experience symptoms of organophosphate exposure. He then proceeded to the Newark Emergency Center (NEC). After questioning by the emergency room staff, his professor was called and responded to the NEC. Together they decided he needed to be treated at Christiana Emergency Room (CER). He was treated with atropine and 2-pralidoxime chloride and was held for two days for observation. He has fully recovered according to the physicians report.

There are several lessons learned from this incident:

1. All work with extremely toxic materials must be reviewed and approved by the Chemical Hygiene Committee (CHC). The post doc was synthesizing a much larger quantity of the material than his professor has authorized. This would not have happened if he was provided with the written operating procedures outlining the parameters that were approved by the CHC.
2. All supervisors are required to provide safety education prior to the start of work with hazardous materials. This individual received informal safety discussions but had not received any emergency response instructions. All chemical exposures must be reported to your supervisor to determine the appropriate medical follow up. All chemical exposures of this type requiring treatment are to be referred to Christiana. In addition, all required training sessions must be documented.
3. When there is a splash hazard all appropriate personal protective equipment must be worn. This individual should have been wearing a face shield and/or had a shield between him and the work to prevent this type of exposure.
4. Work with extremely toxic materials must not be performed alone. All personnel must work with a "buddy" who can assist you in the event of an emergency or incident.

Please review this incident with your lab staff and review your procedures to be sure all appropriate safety precautions are being taken to prevent a serious incident such as this.