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FOR ENGINEERING AND SCIENCE

Interviews

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Description

Interviews with lab workers and researchers as part of a student's project about research safety in laboratories prompted by her job as a new researcher in the laboratory where safety precautions were ignored.

Body

People had a variety of opinions about how to handle EtBr, and I tried to get a feel for how they were educated about its use, and what factors influenced their decisions in how to handle it. The main barrier I encountered in these interviews was that the researchers were sometimes cautious about discussing their safety practices, as if they suspected I was a disguised OSHA representative. I had to reword some questions in order to get direct answers. For instance, the last question I asked about the safety numbers was intended to get the interviewee to tell a story about an emergency or a safety problem and how the lab handled it. I never got a detailed response if I simply asked, "what are some examples of safety concerns you've had in the past?" Overall, people were very helpful in answering my questions once I had proposed them correctly.

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Interview I: Brenda Roberts

Brenda was the first person I interviewed. She works at a lab at a prestigious Medical School researching transcription of genes and gene expression in yeast. Running gels is a routine part of her job. When I read the scenario to Brenda, she surprised me by remarking that they routinely throw gels in the garbage, and that she even touches gels without gloves. She said that "the dilutions are too small to worry about it", and "if we were dealing with pure EtBr we would be much more careful". I knew that the dilutions of EtBr were very small, but I had assumed that even these small quantities should be treated with caution because of what I read in the 7.02 manual. I asked how people in a lab became educated about how to handle chemicals like this, and how they determine how dilute something must be before it is considered harmless. She said that she learned about EtBr when she was a technician out of college from her coworkers, and that she was never afraid to touch it when diluted. The extent of dilution was determined by her own judgment. She said that she "always" reads bottles when she has to work with a new substance and follows those instructions, but she's been working with EtBr so long "its just routine to throw it in the garbage". We went and read the label on the EtBr box, and it was very similar to my 7.02 sheet.

While EtBr did not seem like a danger, chemicals that were rarely used were treated with much more respect. Brenda has a list of new carcinogens that she checks before using something out of an older supply that may not have the updated information on the label. If she did encounter a safety risk, she said she'd first bring it up at a lab meeting and take precautions herself (wear gloves, etc.), then talk to the lab safety coordinator, then the principal investigator (P.I.), and finally to the safety office. She didn't know where the safety office was located or what its formal name was, but she did have the number posted on her desk. It seemed that Brenda had just become so accustomed to running gels and using EtBr that she didn't see it as a safety hazard. When I was speaking with her, she seemed uncomfortable with the fact she touched the gels, and I got the impression that she wasn't entirely convinced that it was safe to do so. Brenda was the most experienced researcher I interviewed, and she used the phrase "standard practice" quite a bit. She was obviously concerned about safety, but she did not see the EtBr as a serious risk. Radiation seemed to be the biggest occupational hazard to her. She had memorized

the emergency number to call in the event of a radiation spill, and we kept coming back to the radiation hazards in the lab. She said that the most serious accident she's ever seen in her lab was when one person ate some ^{32}P . I asked how that happened, and she said that there were accusations of poisoning and attempted suicide, but eventually it was accepted as an accident and nothing ever went outside of the lab. She said that after that, she never ate in the lab again. I was very surprised anyone would ever eat in a lab, and that no one outside the lab had learned of what happened. At the end of the interview, we talked about how people take risks in dealing with chemicals and radiation. She said some people are more "paranoid" than others, and she told me about one new researcher in her lab who checked incoming boxes of radioactive substances for radiation on the outside covering before she would even touch them. Brenda said that she's glad there are people like that around, but she could never be that way. Also, she described people who were very cautious as being "inexperienced" because they "have not learned to take the risks" with chemicals yet.

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Interview II: Martha Wilson

Martha worked in the same lab as Brenda. When she was interviewed she had been working there for a couple of months only. She seemed much more concerned about ethidium bromide than Brenda. Martha always wore gloves, but did dispose of the gels in the garbage. She said she had "never heard of anyone doing it any other way." Unlike most the other people I spoke with in this project, Martha was not aware of any "formal pathway" of safety resources such as the safety office or the lab safety coordinator. She did know about the radiation office however, and said if there was another kind of emergency she'd probably just call them first.

From her experiences in other labs, she said the P.I. "sets the tone" as far as safety is concerned. Martha had had no formal training, but remarked that "its a matter on the job training" and that you have to use your own judgment sometimes as well. Concentration and ventilation are two guidelines she uses when making these decisions, as well as looking at what other people do.

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Interview III: Richard Carter

Richard is a recent graduate working in a lab that studies drosophila (fruit fly) at another prestigious Medical School. He was the newly-appointed lab safety coordinator of 5 labs. I asked if that seemed like a big job to him, he said that he didn't think enough people knew about him-- only the researchers who had been there for a while. Richard said that he would try to get people informed by writing a memo and leaving it in everyone's boxes, and putting a sign on his door. I asked about the safety training Richard had to do before becoming the coordinator, and he said that he had received a huge packet of information, and thought there might be a "seminar or something" but he wasn't sure. I got the impression that he didn't quite know what his responsibilities were yet, although he was very knowledgeable about safety resources at his institution. Richard said that the NIH (National Institute of Health) has the most direct influence on the guidelines that the safety office at his institution enforces because it funds a large portion of the labs. In his lab, someone inspects every week with a radiation counter and looks for other infractions like eating in lab or wearing gloves outside the lab. When I presented the scenario to Richard, he said that the first thing he would do is to talk to the people directly, and if nothing happened, he probably would not do much more, since he does not see EtBr as a serious hazard. He said he would wear gloves himself, and just get used to the situation. I thought it was strange he didn't mention finding the safety officer, so I asked what would happen if someone came to him with a similar problem. He said that he would get the two parties involved together to try and work out a compromise. Also, he said that the safety information on EtBr was always exaggerated because it was a relatively new way to stain a gel, and the company that makes it does not want to be held responsible for any long term consequences.

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Interview IV: Mary Gilbert

Mary is an undergraduate working in a lab that studies RNA enzyme capping. She is also an undergraduate TA in the 7.02 class, and took 7.02 last year. When I presented the scenario to her, she said that she would go directly to the lab safety officer and discuss her concerns. He is a coworker who would know the necessary

network of resources she could use. Then she said she would talk to the people who were causing the problem, and talk to the post-doc in the lab to make sure she was remembering the safety precautions correctly. She was most concerned about people touching door handles and faucets, not the disposal practices. She said that EtBr is not treated very seriously in her lab-- she wears gloves, but throws the gels in the garbage. She said that radiation is taken VERY seriously, but that "everyone throws gels in the garbage... I was told to just throw it in the garbage". From 7.02, she knew of the recommended disposal procedures, but assumed that the post-doc knew what he was doing. Mary said that she generally trusted that the lab was clean, except that once she had noticed people spinning radioactive solutions in a centrifuge that was not designated to handle radioactivity. She mentioned it to the people involved and they stopped. I asked why she didn't also mention the gel disposal if she felt that was wrong as well, and she said that she wasn't convinced it was dangerous. Radiation is always talked about as a hazard, and when someone does something wrong, you mention it. She said that when radiation is mistreated, the technicians' health is in danger, but when you throw out a gel, it ends up in a landfill and no one ever sees it again-- "how much of a difference will it make?" I was very surprised at this answer; we talked some more about this problem, and Mary clarified that she didn't think that people consciously favored their own safety over the safety of the environment, but it happened unknowingly. After that, we talked about the 7.02 safety hazards and what the staff could do to eliminate them. As a TA, she said that she didn't have much more information that I did about disposal procedure, except from her experiences at work. That's probably why people were so unconcerned about the EtBr in the gels-- they are usually thrown away in most labs anyway. She agreed that students should be made more aware of what they are handling by repeating it in lecture and recitation, especially since a TA can't look over their shoulder the entire time.

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Interview V: Paul Davis

Paul is also a student at a prestigious Medical School who is currently working at the Biomechanics lab at a local hospital. He manages the research on a new drug that prevents osteoporosis for a drug company. The main safety hazards he has to deal with directly are infections from the monkey bones they receive. To prevent this he says all lab employees are required to take "universal precautions": wear gloves,

goggles, a face mask, and a long gown. Paul had run gels in a job he held as an undergraduate, and seemed to see the scenario as a very serious situation. He said he always wore gloves and disposed of the gels with EtBr in the collection jars. If the infractions did not stop after talking to the people involved and their supervisor, he said he would go to the safety office and even quit if nothing was done. From his descriptions, it seemed that Paul was almost as paranoid as me when it came to handling dangerous chemicals, which was quite a surprise after talking with the other researchers. When I asked where he had received training on how to treat EtBr, he said he had read the safety handouts given to him at the beginning of his job, but he didn't remember where they came from. After discussing the scenario, we talked about the biomechanics lab and the safety hazards there. Paul said that all the students under him would report directly to him about a safety concern. Then, the student could talk to Paul's supervisor, Judith Cox, who is also the lab safety officer. This position is appointed by the lab director, and is a part of a system of "lab experts". The hospital also has a safety office with separate radiation and chemical offices under it. OSHA guidelines were very important in Paul's lab; there were posters everywhere. The lab is inspected every 4 years by OSHA representatives, so there are consequences if employees do not follow the guidelines. Paul's lab facility was built just last year, and OSHA inspected it before it could open. In addition to the OSHA guidelines, this hospital provides safety classes that every new employee has to complete before starting. Paul mentioned that these classes were good as an orientation, but weren't specific enough to be of practical use. He did have a huge packet of information that looked like it could be useful as a place to start if a safety concern did arise. When talking about safety precautions, Paul mentioned that the drug company would not disclose the structure of the new drug, only the safety procedures recommended for it. He showed me a list of what the company had recommended for safety derived from FDA regulations. An interesting comment Paul made was that the drug company was very safety-conscious, but "more concerned with not being turned down by the FDA than with personal employee safety". Paul could not tell me the name of the company, or what other projects they were involved in. Since this drug will potentially be given to humans, it is not toxic and does not require many precautions, but this idea of not knowing what you're researching was a new issue that I hadn't considered before. What if a lab was researching the effects of an insecticide or another hazardous substance? The workers would be forced to trust the company's descriptions of risk. Paul has to trust the company's list of safety precautions, but he felt they were probably pretty good since the study must be

approved by the FDA.

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Interview VI: Susan Kirkby

Susan is a student in Paul's lab group. Her job is to grind and cut bones to measure their dimensions, and to perform stress tests. I did not present the scenario since she had never run any gels or used EtBr, but we did talk about the particular hazards an employee in the biomechanics lab has to deal with. In performing her job, Susan is exposed to infections from the monkey bones, and must use gloves, goggles, a face mask, and a gown. Overall, she did not seem concerned about contracting any diseases, and said the closest call she ever had was when she accidentally cut off the tip of her glove with a scalpel. When she was showing me the lab, I noticed that she touched only some door handles, while others she opened with a sleeve. I asked why, and she said she "didn't trust that they were clean", and that "other people can be careless". She didn't seem to see it as a big risk, as the most common infection contracted from monkey bones dies when it dries out. However, she said she did wish people would be more careful, but did not want to "rock the boat" and bring anything up to Paul, especially for something that seemed so simple as keeping door handles clean. An interesting outcome of this interview was that Susan happened to disclose some information (without my asking) that Paul would not tell me, such as the name of the company, where they are located, and the other products it makes. I told her that I wasn't supposed to know that, and we spent some time talking about possible reasons why the drug company's name should be kept secret outside the lab. I'm still not sure of the answer, but we thought it might be so that other companies would not know that this company was even working on an osteoporosis drug. Susan said she would ask Paul about it, and see if there is any other information that is supposed to be kept secret.

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Notes

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Rights

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