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Safety and Security Spotlight: Collection and Disposal of Chemical Waste

By Holly Ford
Contributed photo

University Medical Center generates about 60,000 pounds of hazardous and non-hazardous chemical waste every year. Collecting, transporting, consolidating, and disposing of this waste falls on one seven-member team from the Office of Environmental Health and Safety, led by Hazardous Materials Manager **Adam Peters**. We spoke to Peters, along with **Tom Leonard, PhD**, Director of Environmental Health and Safety, and **Clarissa Lynch**, Assistant Director for Research Safety, to get the lowdown on this behind-the-scenes effort to keep our environment clean and clear of potentially dangerous materials.

Photo above, from left to right: Adam Peters, Derek Snapp, Daren Snapp, Jeff Neeley, Ryan Johnson, and Liangzhi (John) Shu.

What are some examples of the type of chemical waste generated at the Medical Center?

Peters: The Medical Center generates a lot of flammable solvents — ethanol and xylene are two of the big ones. Various machines and processes generate different waste solutions and reagents. In the hospital, there is waste from chemotherapy, as well as a large quantity of formaldehyde solutions. This isn't considered hazardous waste according to the EPA [Environmental Protection Agency], but is it something we have to dispose of properly.

Can you explain the process for collecting and disposing of these chemicals?

Peters: We provide containers to the sites of chemical generation. We have a web page where staff can fill out a form when the containers are full. Also, we have some regularly scheduled pick-ups for areas that frequently change out solvents from the machines they use, like histology and surgical pathology. They may generate 80 gallons each time they empty a machine — and they do that twice a week.

Once picked up, the full containers are transported to our special materials handling facility on Observatory Hill. We consolidate the solvents and solutions into 55-gallon drums, which are much more economical to dispose of than the smaller containers.

Leonard: These containers are then transported off-site by a third party for proper disposal – usually incineration.

So this is a very hands-on process. There aren't a lot of machines doing the work, correct?

Leonard: Yes, it's an incredibly manual, labor-intensive process.

Peters: That's why we want people generating the waste to understand that there are a lot of people down the line who are actually handling this stuff. So it's very important that we get accurate information as to what exactly they're giving us.

On that note, how can staff best help your team do their jobs efficiently and safely?

Leonard: I feel like there's some perception that all waste is glommed together, that there is a black hole you can throw stuff into and it disappears. In fact, there are very specific segregation requirements for regulated medical waste, chemical waste, and radioactive waste. We can't stress enough the importance of placing waste into the appropriate container with the appropriate labeling. This is important for both safety and compliance.

Peters: I think the Medical Center does a very good job and the staff is used to complying with regulations. We try to make the process as easy as possible.

What are some of the risks of not managing these chemicals appropriately?

Peters: If there is a spill, there's a potential fire risk, and there's also risk of exposure either by physical contamination or breathing vapors. That risk is higher when we're processing large quantities, but it can happen anywhere, and can affect many more people than the ones in the immediate vicinity. The entire chemistry building had to be evacuated once because someone dropped a bottle of solvent in the main atrium of the building, and the fumes were so strong it was unsafe to breathe throughout most of the building.

Leonard: There are also regulatory risks involved. The improper management or handling of hazardous waste incurs huge fines. We have routine inspections of our processes, facility, and staff from both the Virginia Department of Environmental Quality [DEQ] and, occasionally, the EPA.

Peters: We are inspected periodically. Usually, the DEQ will conduct those; they are the local arm of the federal EPA. They inspect our handling facility, and they always want to go out to various places that generate waste. That can be anywhere – the chemistry building, the Medical Center ... wherever they want to go. They will inspect and make sure that containers being used are not only the proper containers, but that they're properly labeled and they are kept closed except when actively transferring waste. Also, they may interview people in the lab and ask them how they handle a particular chemical.

What kind of training is required for this team to stay current on the latest safety procedures and proper disposal of chemical waste?

Peters: Anybody who handles or processes hazardous waste needs to go through a 40-hour training class, with annual retraining that is eight hours. Because we transport waste, we need to have DOT [Department of Transportation] hazardous materials transportation training, which is completely separate, and that is required every three years. There is also

blood borne pathogen training every year and just general chemical safety trainings we do in-house every year.

Are other Medical Center employees required to go through training related to chemical waste?

Lynch: Yes, we have a CBL in Workday for chemical safety training, which is referenced in the mandatory new employee training for the health system. It does require someone who works with chemicals and hazardous waste to self-identify as needing that additional training.

The training was made to comply with OSHA's [Occupational Safety and Health Administration] hazard communication standard on recognizing chemical hazards. It also includes information that's specific to UVA on how we manage chemical hazardous waste here, including instructions to the employee on how to fill out labels for waste containers and how to get more information about properly disposing of chemicals.

Peters: They make a lot of effort in the Medical Center to make sure that everybody is trained thoroughly, so people know what they're dealing with and how to handle it properly.

Peters, Leonard, and Lynch are all part of the Safety and Security Subcommittee Hazardous Materials and Waste Workgroup. Interested in joining? Email [Tom Leonard](#) for more information.

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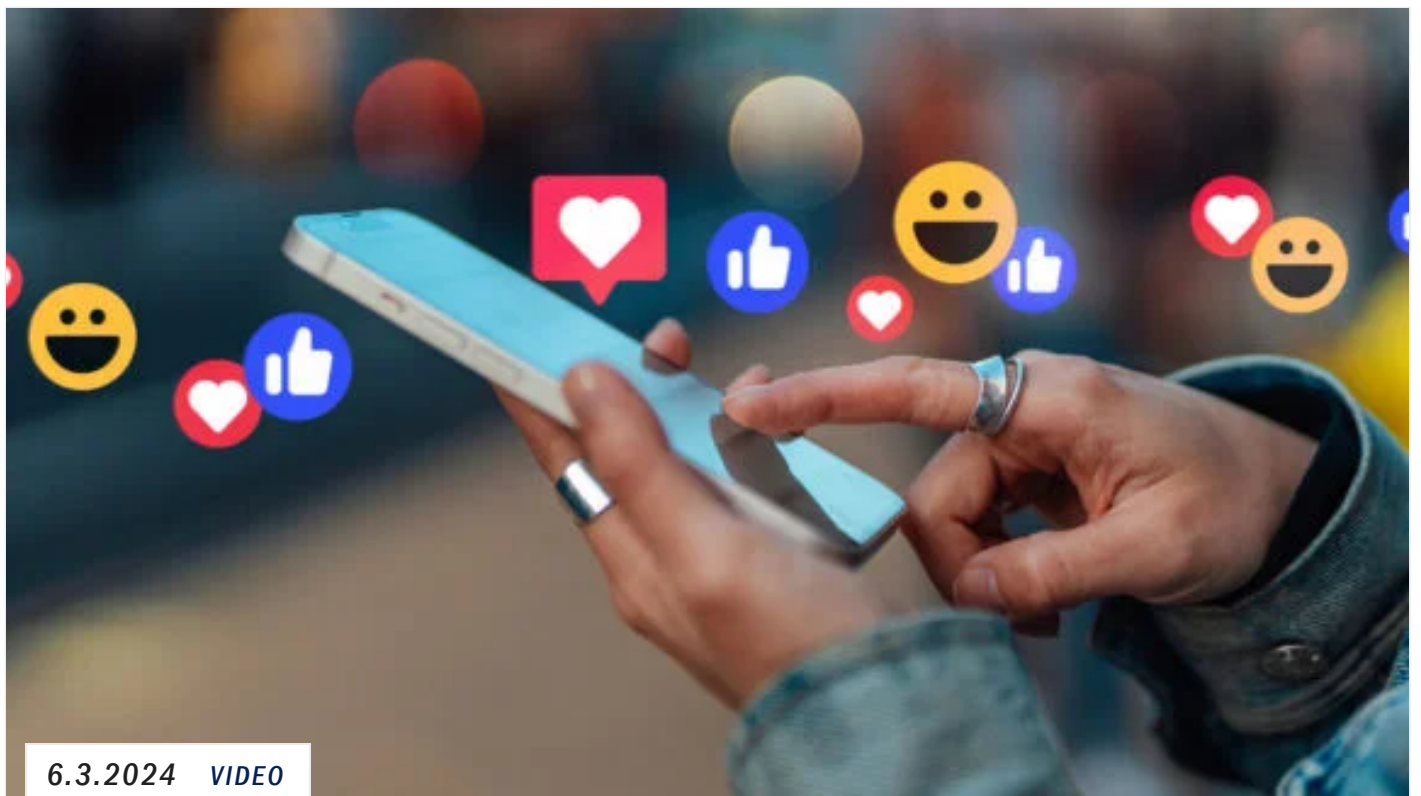


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