



## SUBMISSION FORM

All submission forms must include the following information. Separate submission forms must be turned in for each eligible program. **Deadline: July 1, 2024.** Please include this submission form with the electronic entry. If you do not receive an email confirming receipt of your entry within 3 days of submission, please contact [Gage Harter](#).

### PROGRAM INFORMATION

County: County of Henrico  
Program Title: Hazardous Incident Team (HIT) Awareness Program  
Program Category: Criminal Justice & Public Safety

### CONTACT INFORMATION

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### SIGNATURE OF COUNTY ADMINISTRATOR OR DEPUTY/ASSISTANT COUNTY ADMINISTRATOR

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Signature: *MS Callahan*

## **Program Overview**

The Hazardous Incident Team Awareness program was developed by the Henrico County Division of Fire's Hazardous Incident Team (HIT) and was first implemented in January 2021. The program builds awareness and understanding of the County's Regional Hazmat Team and its capabilities for toxicology students enrolled at Virginia Commonwealth University School of Medicine. Students are primarily in their final year of medical school; however varying levels of experience exist in the groups.

The program is offered quarterly, and the students learn about the emergency response model of the team, discuss medical emergencies and treatments related to hazardous materials exposure. In addition, students will have the opportunity to get a hands-on experience with tools and equipment while wearing chemical protective clothing ensembles. The experience gained by the students equips them with a better understanding of hazardous materials response operations, and emergency medical care of exposed patients, and in turn, improves the working relationships of emergency responders with physicians in the community.

The HIT works in conjunction with the Virginia Department of Emergency Management (VDEM) and is contracted as part of a regional hazardous materials response team. As such, the team can respond across the Commonwealth of Virginia. However, it is primarily responsible for 24 counties in central Virginia, and the City of Richmond. The team's response area is the largest geographical region of the Commonwealth, with more than 100 miles of Interstate 95 from north to south and more than 80 miles of Interstate 64 from east to west. The Hazardous Incident Team Awareness program was developed in partnership with Virginia Commonwealth University (VCU) School of Medicine to provide medical students with experience and awareness of the team and its capabilities, as well as expand the students' understanding of toxicological emergencies and their treatment.

## **Problem/Challenge/Situation Faced by Locality**

Hazardous materials exposures and toxicological emergencies are serious incidents with the potential to have devastating impacts on the health and wellbeing of our community. The program was created in conjunction with VCU School of Medicine to provide hands-on experience in understanding of emergency hazardous materials response in the region. Prior to implementation, the capabilities of HIT were largely unknown to members of VCU, the region's largest hospital

and trauma center. This quarterly program gives future physicians in the community an opportunity to understand and experience those capabilities, aiming to improve interagency cooperation, and patient care both in the pre-hospital and clinical settings. The program is broadly repeatable to other cities or regions, provided the location has a local medical school, and a metropolitan hazardous materials team.

### **How Program Fulfilled Awards Criteria**

This innovative initiative was developed after a request was made by Henrico Division of Fire's Operational Medical Director to allow toxicology students to visit one of the Hazardous Incident Team stations in late 2020. In collaboration with Dr. Michelle Troendle, a Toxicology Professor at VCU. Together the team developed a detailed curriculum and plan for the quarterly solutions-based program.

This program includes a significant component of education and preparation as an anti-terrorism including bio and chemical weapon attacks. Students and instructors engage in discussion about chemical agent attacks, (such as nerve agents like VX and Novichok) as well as their relevant antidotes and treatments. These are topics that are covered in their toxicology course but interacting with HIT members with some real-world experience on these matters is almost always seen as beneficial by the students. Considerations and concerns for a mass casualty incident involving chemical agents are covered as well. Issues such as patient decontamination, antidote availability, and logistics of emergency supply caches are included in the discussion. There is also often discussion regarding the HIT's interagency cooperation with Henrico Police Department (HPD) and FBI Explosive Ordnance Disposal at suspicious package calls, and how the team clears these packages for chemical, biological, and radiological hazards.

The participants continue to rate the program highly, and regularly express that the experience led to understanding and learning that would not have been possible in the classroom or clinical setting. This unique learning pays dividends to the physician when they encounter an actual toxicological emergency, as they have experienced how the HIT handles the situation and can plan their response accordingly. This benefits public safety in general, and individual patients in particular. It also benefits Firefighters, EMS workers, and Hazardous Incident Team members as they are among the most likely to be exposed.

### **How Program Was Carried Out**

A typical student visit begins with a station tour and an introduction to the HIT by the team leader. Participants then get a hands-on demonstration of the apparatus and atmospheric monitoring equipment. The students then move on to one of the Division of Fire's Advanced Life Support Medic units, where there is an in-depth discussion of medical equipment, medications, and capabilities that the team's EMS providers deploy. Several types of hazardous materials exposures and their treatment are discussed in detail with the students, and a pre-assigned set of quiz questions are reviewed with them. Finally, the students are given the opportunity, which is most often the highlight of the day, to don fully encapsulated chemical protective clothing and perform a series of tasks in a hazmat suit.

In addition, in every session we spend time discussing the widespread nature of the opioid crisis, and the threats that newer generation drugs like Carfentanil pose to responders and medical personnel alike. The experience is often a memorable one, where strong impressions are gathered. The participants walk away with a much greater appreciation for the physical and mental stress responders face when mitigating hazardous materials emergencies. The program is consistently rated highly by the students, and Dr. Troendle is often told that the program was the highlight of their course experience.

### **Financing and Staffing**

The program's cost is low, as it only requires operating costs for personnel. The units, facility, PPE, and monitoring equipment utilized are maintained within the complement assigned to the Division of Fire HIT. The chemical protective clothing ensembles used during the demonstrations are part of the team's training cache and are cleaned and recycled for later use. Cleaning of training PPE is accomplished by on-duty personnel, and simply requires soap and water for supplies. The total cost of each program implementation is approximately \$380 in overtime expense for 2 employees, 4 hours of overtime each.

### **Program Results**

The program is an ongoing success. More than two years into its original conception, the HIT regularly hosts toxicology students from VCU. The program has been delivered eleven times as of the date of this submission, with at least three more dates scheduled for the remainder of calendar year 2024. The frequency of delivery has resulted in more than 120 current or future

physicians participating. This has resulted in the accomplishment of a stated goal, increasing awareness of toxicological emergencies and the HIT's capabilities in them. The team's providers also gain valuable experience through the program. Each time the Division's EMS providers discuss with the group of future physicians, unique insight and information is passed along, leading to better patient care in the pre-hospital environment.

Thankfully, incidents of terrorism are low frequency events, but are still very high risk. Therefore, the direct results of the program are largely in the arena of preparedness and awareness for both the HIT and the medical community. Finally, the working relationship between two major stakeholders in public health and the safety of our community is improved through this program. This program could also significantly benefit other metropolitan areas with medical schools and hazardous materials teams. As terrorism and the opioid crisis continue to be of significant concern to the country, the learning and discussions that occur in this program are valuable to any metropolitan region. Interagency cooperation is a priority for the Division of Fire and working with the largest hospital system in the region on a regular basis pays dividends in that regard. As we continue to build these relationships and educate healthcare providers, both agencies as well as the community we serve benefit.

### **Brief Summary**

Allowing the unique pairing of medical students with emergency responders to create an educational experience that benefits both the medical students and the Division of Fire. It has and continues to build interagency cooperation, communication, and goodwill. The program is cost-effective and carries little to no fiscal impact on the organization. The program is easily scalable and repeatable in different areas of the country as well. While it currently is built around metropolitan area medical schools and hazmat teams, it would require only minor changes to fit smaller localities. Any area with hazmat response capabilities and a local hospital could benefit from the core functions of this program.

Most importantly, the program improves public health and emergency provider safety by providing future physicians with hands on learning about hazmat, toxicological, and terrorist incidents that they would otherwise not have the opportunity to experience. Pre-hospital providers also gain valuable learning experiences in the process of group discussions with the students. The program continues to be popular with VCU's Toxicology department and its students, making it likely to

further expand in the coming years. Soon, plans include expanding the audience to current Emergency Physicians at VCU as well as other area hospitals. Longer-term plans include presenting the program at regional hazmat conferences with the hopes of expanding it to other areas of the country.

# Hazardous Incident Team (HIT) Awareness Program

## Supplemental Material



