Virginia Association of Counties

ACHIEVEMENT AWARDS

SUBMISSION FORM

All submission forms must include the following information. Separate submission forms must be turned in for each eligible program. **Deadline: July 1, 2025.** Please include this submission form as the first page of your 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: Fairfax County

Program Title: Fire & EMS Pharmacy Program– A Hub-and-Spoke Model for Medication Oversight and Access

Program Category: Criminal Justice & Public Safety / Health & Human Services / Regional Collaboration

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Fairfax County Fire & Rescue Department

1. Executive Summary

In 2024, Fairfax County Fire & Rescue launched a DEA-compliant, centralized Fire & EMS Pharmacy to address longstanding challenges in medication oversight, regulatory compliance, and EMS field readiness. This initiative resulted from recent regulatory changes by the U.S. Drug Enforcement Administration (DEA) and the Virginia Board of Pharmacy, enabling fire and EMS agencies to obtain licensure and oversight authority for controlled substances independent of hospital systems.

Prior to this program, the Department relied on a hospital-based Controlled Substance Kit (CSK) exchange model, which lacked robust accountability mechanisms, consistent chain-of-custody documentation, and limited departmental control over medication tracking.

The new Fire & EMS Pharmacy uses a hub and spoke model that centralizes pharmaceutical services for all department field units, ensuring full DEA and Virginia Board of Pharmacy compliance. A full-time Pharmacist-in-Charge and two pharmacy technicians oversee ordering, accountability, and clinical compliance. This model increases patient safety, reduces waste, enhances accountability, and provides cross-sector collaboration across the Northern Virginia region.

The program meets the VACo Achievement Award criteria by offering an innovative solution to a critical operational need, establishing robust interagency partnerships, and serving as a replicable, scalable solution for local governments.

2. Problem Identification: Systemic Challenges in EMS Medication Oversight

Prior to the establishment of the centralized Fire & EMS Pharmacy, Fairfax County Fire & Rescue operated under a hospital-based Controlled Substance Kit (CSK) exchange system. While this model provided a mechanism for obtaining essential medications, it proved insufficient in maintaining the level of accountability, transparency, and operational control expected under modern EMS standards.

Several systemic deficiencies were identified:

- **Lack of Medication Accountability:** The CSK system relied on physical exchanges with partner hospitals, without a standardized or automated inventory control system. This made it difficult to track exact medication usage, expiration dates, or kit contents with real-time accuracy.

- **Insufficient Documentation Standards:** Medication administration records were often handwritten or inconsistently maintained, and there was no centralized or searchable database to verify controlled substance use, wastage, or discrepancies across the system. In the event of a regulatory audit or internal review, documentation gaps placed the department at legal and operational risk.

- **No Formal Training Program:** Neither Advanced Life Support (ALS) nor Basic Life Support (BLS) providers received comprehensive training related to medication stewardship, documentation expectations, chain-of-custody procedures, or compliance protocols. Most knowledge was transferred informally or learned on the job, leading to wide variability in practice.

- **Limited Oversight:** Under the hospital-based model, medication oversight was external and reactive rather than internal and proactive. The Department had

   limited authority over managing medications once issued, including storage

   conditions, loss reporting, and quality control measures.

- **Regulatory Nonalignment:** The CSK model did not align with recent DEA

   expectations for direct EMS agency registration, nor did it meet updated Virginia

   Board of Pharmacy guidance on controlled substance handling and accountability

   within public safety agencies.

National guidance from the DEA and EMS accrediting bodies now emphasizes agency-level accountability, secure on-site storage, periodic auditing, and chain-of-custody documentation—all areas that the CSK model inherently failed to support.

These deficiencies highlighted the urgent need for a redesigned system that placed regulatory compliance, provider education, and systemwide oversight at its core.

3. Innovative and Customized Solution: The Fire & EMS Pharmacy Hub

Fairfax County designed and licensed a dedicated pharmacy that is fully compliant with 18VAC110-20 (Virginia Board of Pharmacy) and DEA regulations. The program is structured as a hub-and-spoke model, with the Public Safety Headquarters (PSHQ) serving as the centralized pharmacy "hub." This facility, located at Fire Department Headquarters, houses the primary stock of medications, managed by the Department's full-time pharmacy team.

The hub is supported by 11 strategically located fire stations, which act as spokes to serve operational field units across the County. These sites enable rapid, decentralized access to restock medications and supplies, ensuring coverage for over 400 square miles and one of the Commonwealth's largest Fire & EMS agencies.

Technological Enhancements

- **Controlled Substances:** Secure storage and access for Schedule II - V medications is provided through CompX eLock Safes, which log each access event and support DEA-mandated security and audit functions. Additionally, these locks are integrated with RFID technology that tracks controlled medications as they are entered or removed from all safes.

- **Medication and EMS Consumables Distribution:** The department utilizes VendNovation locker systems, dispensary machines with real-time inventory tracking, and automated resupply alerts. Along with the CompX safes, these machines improve accuracy, reduce waste, and minimize the opportunity for human error or diversion.

Program Components

- **DEA Registration and Board of Pharmacy License:** Enables lawful acquisition, storage, and distribution of Schedule II - V medications.

- **Pharmacist-in-Charge (PIC):** Oversees compliance, conducts inspections, manages purchasing, and liaises with the Operational Medical Doctor and field staff.

- **Medication Inventory Platform:** Tracks medications from receipt to field administration, including lot numbers and expiration dates.

- **Clinical Formulary Alignment:** All medications, including controlled substances, life-saving drugs, and specialty medications, are aligned with Department protocols and medical direction.

- **Standard Operating Procedures (SOPs):** Provides guidance for secure handling, storage, and restocking.

This integrated model represents a forward-thinking and scalable solution that vitally centralizes oversight while decentralizing access. It makes Fairfax County's EMS Pharmacy a model for other localities seeking to modernize their pharmaceutical and operational support infrastructure.

4. Intergovernmental and Cross-Sector Collaboration

The Fire & EMS Pharmacy was made possible through extensive coordination across local, state, federal, and private sectors:

Local Government Support

- **Fairfax County Government:** Provided capital investment, interdepartmental coordination, and regulatory liaison support.
- **Fairfax County Health Department:** Supported planning integration with public health priorities and emergency preparedness.

State and Federal Partnerships

- **Virginia Board of Pharmacy:** Approved the licensing structure and ensured compliance under new EMS-focused interpretations.
- **DEA (Washington Field Office):** Provided guidance on DEA registration processes and controlled substance storage and dispensing compliance.

Private Sector Engagement and Technology Vendors

Several key private-sector partners were integral to the system's successful launch:

- **CompX Security Products:** Provided secure, programmable eLock safes that support restricted access, RFID technology, and audit trail capabilities for all controlled substance storage across the hub and spoke stations. More information is available at www.compx.com.

- **VendNovation:** Supplied advanced locker-based dispensary systems for EMS consumables and non-controlled medications. These units are equipped with barcode scanners, usage tracking software, and alert systems for restock and expiration. Learn more at www.vendnovation.com.

- **Controlled Substances Vendors:** Contracted numerous vendors as part of a redundant system for medical supply distributors, ensuring consistent delivery, accountability in packaging, and integration with inventory systems.

- **PSTrax:** Provided an inventory management platform that assists in medication tracking, chain-of-custody, and integrates with other tracking systems to improve oversight and documentation fidelity. Learn more at www.pstrax.com.

These vendor partnerships contributed advanced, field-tested technology that was customized to meet the Department's operational and compliance goals. The result is a secure, responsive, and scalable Fire & EMS Pharmacy model supported by industry-leading innovations.

5. Replicability and Adaptability to Other Localities

The program's structure allows replication in other EMS jurisdictions:

- Policy Templates

- Implementation Guide

- Scalability

Several regional jurisdictions have formally expressed interest in replicating this model, and Fairfax County stands ready to assist peer agencies with implementation.

6. Measurable Outcomes and Evaluation Metrics

Rather than relying on traditional outcome metrics, the Fairfax County Fire & EMS Pharmacy has implemented a robust set of active accountability and monitoring practices previously unavailable under the legacy CSK system.

Key operational improvements include:

- **Active Dashboards:** Real-time dashboards track medication inventory levels, expiration timelines, usage trends, and resupply cycles. This data informs ordering practices, reduces waste, and ensures all field units maintain necessary stock levels.

- **Enhanced Inventory Control:** The pharmacy maintains automated inventory systems that allow for comprehensive tracking of every medication unit from ordering through administration. This traceability ensures accurate documentation and supports compliance with the DEA and the Virginia Board of Pharmacy.

- **Diversion Monitoring Capabilities:** The system enables rapid detection and response to potential diversion events. Each transaction is logged electronically and reviewed through exception reports and usage audits conducted by the Pharmacist-in-Charge.

- **Data-Informed Decision Making:** Clinical leadership analyzes usage data to inform formulary management (a formulary is a list of preferred medication), anticipate high-demand medications, and plan procurement cycles, thereby improving financial stewardship.

- **Improved Operational Response:** Resupply and restocking procedures are data-driven, allowing the department to anticipate shortages and streamline field support. Providers receive replenishment faster, and fewer emergency orders are required.

These accountability enhancements build a foundation for continuous improvement, risk mitigation, and real-time operational oversight that significantly surpasses the limited visibility the prior CSK model offers.

7. Public Impact and Community Value

- **Patient Safety:** Improved availability of medications on time and ready for field use.
- **Operational Readiness:** Resulted in field providers reporting faster restocks, better inventory accuracy, and improved trust in clinical systems.
- **Regulatory Assurance:** Eliminated risk of DEA fines and improved provider compliance with medication handling.
- **Cost Control:** Centralized procurement and reduction in waste save taxpayer dollars and support sustainability.

The Fire & EMS Pharmacy is critical in broader public health and interagency collaboration. Staff actively participate in the Northern Virginia Emergency Response System (NVERS) Pharmacy Work Group, providing expertise and coordination in regional medication policy development and mutual aid support. The pharmacy is also integrated with the Department's Community Response Team (CRT), enhancing outreach and field readiness during behavioral health and public health emergencies.

8. Sustainability and Long-Term Vision

The Fairfax County Fire & EMS Pharmacy is structured with long-term sustainability and strategic scalability at its core. Built on a foundation of regulatory compliance, automated accountability, and regionally integrated logistics, this model is well-positioned to support continued operational excellence and broader public safety partnerships.

Key elements of sustainability include:

- **County Budget Integration:** The program is fully funded in the FY25 County Operating Budget, including expenses for the salary of the Pharmacist-in-Charge, inventory software licensing, and vendor support services.

- **Technology Integration and Upgrades:** The Department is actively implementing system integrations between the pharmacy's inventory software, CAD (Computer-Aided Dispatch), and ePCR (electronic patient care reports). This closed-loop data architecture will ensure continuous medication ordering, administration, and documentation synchronization.

- **Vendor Lifecycle Support:** Fairfax County has contracted with industry-leading vendors who offer continued technical support and scalable solutions:
  - CompX eLocks (www.compx.com)
  - VendNovation (www.vendnovation.com)
  - Various Medical supply vendors
  - PSTrax (www.pstrax.com)

- **Workforce Planning:** To ensure continuity of operations, the Department has developed a pharmacist succession strategy and cross-training plans for EMS logistics staff.

- **Regional Partnership Capacity:** The pharmacy model is fully scalable. Discussions are underway with neighboring jurisdictions to explore shared access models or coordinated regional pharmacy services under the Northern Virginia Emergency Response System (NVERS).

- **Operational Flexibility:** The pharmacy's structure allows for easy expansion of scope to include point-of-care diagnostics, field-ready therapeutics, and future public health initiatives in collaboration with local and state partners.

This future-facing infrastructure ensures that Fairfax County's investment will continue to provide public safety and health returns for years to come, while serving as a blueprint for other agencies.

9. Conclusion

The Fairfax County Fire & EMS Pharmacy exemplifies how local government can lead through innovation, regulation-informed practice, and strong interagency collaboration. Initiated in response to DEA and Virginia Board of Pharmacy regulatory changes, the program replaced an outdated and unaccountable hospital-based CSK system with a fully compliant, centralized hub-and-spoke model that prioritizes safety, accountability, and clinical excellence.

Through a licensed pharmacy led by a Pharmacist-in-Charge, Fairfax County has established a framework that ensures full DEA and Board compliance, real-time inventory tracking, provider education, and rapid operational support. This program is actively integrated into the Department's broader readiness and community health mission through collaborations with the NVERS Pharmacy Work Group and the Community Response Team (CRT).

More than a local innovation, this program is a scalable model for others across the Commonwealth. It reflects a commitment to data-informed decision-making, cross-sector cooperation, and the highest standards of EMS care. It is a forward-thinking, future-ready investment that will advance public safety and health outcomes.

We respectfully submit this program for consideration by the Virginia Association of Counties Achievement Awards Committee.

Attachments Available Upon Request:

- Pharmacy Licensing and DEA Documentation

- Standard Operating Procedures (SOPs)

- Inventory System Screenshots

- Pharmacist Position Description

- Program Implementation Timeline and Budget