Plan Overview

A Data Management Plan created using DMPTool

Title: Drone Medical Package Delivery for Improved Transportation and Better Patient Outcomes

Creator: Madeline Alden

Affiliation: United States Department of Transportation (DOT) (transportation.gov)

Principal Investigator: Cynthia Williams, David Bowles, Heather Richter

Data Manager: Kevin O'Brien , George Mcleod

Project Administrator: John Costulis, Anne Doyle, Madeline Alden, Joel Davidson

Contributor: Aaron Koehl, Nick Chuquin, Dr. Yin-Hsuen Chen

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Funding opportunity number: 69A3552341006-SMARTFY22N1P1G54

Grant: https://www.transportation.gov/sites/dot.gov/files/2023-03/FY22%20SMART%20Project%20List.pdf

Template: SMART Grants Stage 1 Data Management Plan (DMP)

Project abstract:

The project proposes to address climate and resiliency, equity and access, and safety and reliability for medical and emergency response package delivery for various applications where the use of aerial drone mode of transportation will lead to better patient outcomes and improved safety and emergency response. The project opportunity is the exploration of integrating autonomous unmanned systems in the delivery of medical, public safety and emergency response supplies such as medication to determine if this innovative technology can be leveraged to address regional health disparities, health equity, and access to care for rural communities. Recent staffing shortages, transportation, and supply chain issues are even more prevalent across the historically disadvantaged Eastern Shore of Virginia, which includes Accomack and Northampton Counties and particularly the very remote community of Tangier Island. Extended shipping and diagnostic turnaround times due to the geographical and rural make-up of the region pose a challenge for urgent deliveries between hospital facilities, clinics, and pharmacies and can negatively impact patient outcomes. Coupled with the lack of public transportation systems that reach into the areas outside of Route 13, these geographies present unique maritime, road-related delays, and unpredictable congestion which pose an issue for urgent deliveries.

The use of autonomous uncrewed systems (Drones) could revolutionize the transportation of critical medications, medical supplies, public safety and emergency response in rural areas that lack public transportation to improve patient health outcomes, provide needed access to people who cannot drive or depend on others to help get their medications needed for chronic conditions. The project planning, research, and prototyping involves several partners including Riverside Health System, Old Dominion University (ODU), the Accomack-Northampton Planning District Commission, and DroneUp.

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Copyright information:

Drone Medical Package Delivery for Improved Transportation and Better Patient Outcomes

1. **Name of the project**: Drone Medical Package Delivery for Improved Transportation and Better Patient Outcomes
2. **Grant number:** 69A3552341006-SMARTFY22N1P1G54
3. **Name of the person submitting this DMP:** Anne Doyle
4. **ORCiD of the person submitting this DMP:** N/A
5. **Email and phone number of the person submitting this DMP:** Email - adoyle@a-npdc.org, phone number - 757-787-2936, x115
6. **Name of the organization for which the person submitting this DMP is working:** Accomack-Northampton Planning District Commission
7. **Email and phone number for the organization:** adoyle@a-npdc.org, Main Number: (757) 787-2936, Toll Free: (866) 787-3001
8. **Link to organization or project website:** organization - https://www.esvaplan.org/, project website - https://visaatodu.org/elevating-health-care-access-project/
9. **Date the DMP was written:** 12/15/2023

1. **Description of planned data:**

Health benefits/business case - population and patient data of Eastern Shore, Virginia (patient health outcomes, heath disparity, social vulnerability, access to care, and clinical concerns)

Planned internal data sources: Riverside Health System's electronic health records (Epic, Strata)

Planned external data sources – Virginia Department of Health, US Census, United States Health Resources and Service Administration, VHSPDC, Census Bureau Search, Centers for Medicare and Medicaid Services - Chronic Conditions | Virginia Open Data Portal

Optimized / maximize locations and patients (Route mapping, corridors, and hubs – neighborhoods, environment, elevation, population)

Planned internal data sources – ODU GISHub, VMASC Virginia Data Cube Products and Datasets - VMASC Virginia Data Cube

Planned external data sources – FFA Advisories Database, ADSB signal data, MIT PEDARS, Dedrone Tracker, Virginia LiDAR Downloads | VGIN, Virginia Building Footprints | VGIN, National Flood Hazard Layer | FEMA.gov, Land Cover Data Overview | U.S. Geological Survey (usgs.gov), Virginia Parcels | VGIN, Social Vulnerability Index for Virginia by Census Tract, 2018 | Virginia Open Data Portal, Socioeconomic Data and Applications Center | SEDAC (columbia.edu), Data Catalog | Planetary Computer (microsoft.com), public use GIS and satellite data and other social and demographic datasets

2. **Expected scope and scale of data collection:** geographical and demographic data for the Eastern Shore of Virginia by county

3. **Data characteristics:** Phase 1 data will be mostly publicly accessible, geolocated data on a scale needed for modeling and simulation

Privacy and security protection of data: Restricted access through secure access systems such as a controlled computing environment with authorized trained users complying with secure system protocols, excludes patient data. Patient data will comply with Riverside's privacy, compliance policies and HIPPA regulations

1. **Anticipated file formats for data and related files:** PDF, csv, jpeg, .pdf, png
2. **Use of platform-independent and non-proprietary formats:** will comply with open standards

3.   **Metadata standards planned to be used to describe the data:** will follow conventions for each adopted data type and use at least one metadata file following DCAT-US v1.1 schema

1.   **Describe any sensitive data that may be collected or used:** limited use of PII will be employed and restricted by Riverside Health for internal decision points and planning reasons, no data sharing of PII will be done in Stage 1

2.   **Describe how you will protect PII or other sensitive data, including IRB review, application of CARE Principles guidelines, or other ethical norms and practices:** will comply with company's privacy, compliance policies and HIPAA regulations to ensure sensitive data is secured and confidential

3.   **Describe any access restrictions that may apply to your data:** all personally identifiable information (PII) and company proprietary data will not be shared, access restrictions are outlined in partnership teaming agreements, NDAs, subcontracts and internal company policies

4.   **If necessary, describe any division of responsibilities for stewarding and protecting the data among Principal Investigators or other project staff:** Division of responsibilities are outlined in partnership teaming agreements, NDAs, subcontracts and internal company policies

1.   **Describe who will hold the intellectual property rights for the data created or used during the project** : intellectual property rights carried out will be consistent with the DOT SMART grant program agreement

2.   **Describe whether you will transfer those rights to a data archive, if appropriate** : intellectual property rights carried out will be consistent with the DOT SMART grant program agreement

3.   **Identify whether any licenses apply to the data:** N/A

4.   **Describe any other legal requirements that might need to be addressed:** All flight operations are subject to either compliance or under waiver to Title 14, Code of Federal Regulations (14 CFR) part 107

1.   Archived data will be stored in one of the DOT approved repositories and will comply with 'Plan to Increase Public Access to the Results of Federally-Funded Scientific Research Results, Version 1.1' where ever possible. We intent to archive the data in Figshare, https://figshare.com, this repository Dataverse aligns with Old Dominion's University Research and the collaborative format is necessary our multi-partner project approach.

2.   https://figshare.com repository will be available upon project publishing

3.   Data set will comply with the minimum amount of metadata to support DCAT-US Metadata Schema

4.   Identifiers will be created to support and maintain the preservation of the data lifecycle

5.   Appropriate references were reviews upon creation of this plan to ensure requirements will be met, references consulted include but is not limited to the following:

    1.   DCAT-US Schema v1.1 (Project Open Data Metadata Schema), https://resources.data.gov/resources/dcat-us/

    2.   https://ntl.bts.gov/ntl/public-access/data-repositories-conformant-dot-public-access-plan

    3.   Plan to Increase Public Access to the Results of Federally-Funded Scientific Research Results Version 1.1