



# Data Release Application

## Limited and Identifiable Extracts

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### Client Application Revision History

The following reflects the history of changes made to this document during the application process prior to project production. Once in production, any further changes to the application may result in additional cost and production delays.

To be completed by CIVHC staff			
Date	New Version Number	Description of Change(s)	CIVHC Change Author (full name, complete title)
3/26/2025	V.01	Initial version drafted with client.	Lucía Sanders, Key Account Manager
3/31/2025	V.02	Transposed to latest DRA template to include 2024 in data request.	Lucía Sanders, Key Account Manager
4/4/2025	V.03	Updates to Proposed Publication or Release Date, Member/Patient Filters, PHI/DOB justification, data users, and removed DRG codes.	Lucía Sanders, Key Account Manager
	V.04		
	V.05		
	V.06		
	V.07		
	V.08		
	V.09		
	V.10		

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## Data Requestor Details

### General Project Details

Project Title:	Wildfires and Population Health
Application Start Date:	2/14/2025
Requested Project Delivery Date:	10/1/2025
Client Organization (legal name):	University of Maryland, College Park
Client Organization Address:	4200 Valley Drive, College Park, MD 20742
CIVHC can publicly share the Client Organization's name in its <a href="#">Change Agent Index</a> .	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
To be completed by CIVHC staff	
CIVHC Contact (full name, complete title):	Lucía Sanders, Key Account Manager
Project Number:	25.20
Condensed Project Title:	Wildfires Population Health

### Project Contacts

<b>Project Contact Name:</b>	<b>Michel Boudreaux</b>
Title:	Associate Professor
Email:	mhb@umd.edu
Phone Number:	202-394-4412
<b>Analytic Contact Name:</b>	
Title:	
Email:	
Phone Number:	

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<b>Invoice Contact Name:</b>	
Title:	
Email:	
Phone Number:	
<b>Data Release Fee Signatory:</b>	
Signatory Organization (legal name):	
Title:	
Email:	
Phone Number:	
<b>Data Use Agreement Signatory:</b>	
Signatory Organization (legal name):	
Title:	
Email:	
Phone Number:	

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### Project Schedule and Purpose

Proposed Project Start Date <sup>1</sup> :	10/2/2025
Anticipated Project End Date:	9/30/2030
Proposed Publication or Release Date:	8/1/2026

1. Explain the purpose of your project. If this project is related to a previous project, also explain how this project is related and whether the data or results of both projects will be combined.

Wildfires are increasing in size and intensity. The smoke plumes generated by wildfires can travel thousands of miles and affect nearly every community. Existing evidence suggests that exposure to wildfires is harmful to human health. There are two important channels that drive these effects: (1) Exposure to smoke plumes which carry harmful air pollutants; (2) Exposure to local fire activity which causes stress and disrupts access to local health care resources. Infants, pregnant women, the elderly, and those with existing respiratory conditions appear especially vulnerable.

Very few wildfire studies have used All Payer Claims Data, which has limited our ability to track patients over time and to examine health care contacts across a broad array of payers and provider types, especially for outpatient services. The proposed project seeks to fill this gap. We will examine exposure to smoke plumes and exposure to local fire activity.

2. Detail the specific project aims, research question(s) you are trying to answer, or problem(s) you are trying to solve with this data request.

- i. What is the association between wildfire exposures and infant, maternal, and child health, health service utilization, and health care costs?
- ii. What is the association between wildfire exposures and adult (non-maternal) health, health service utilization, and health care costs?
- iii. Are associations moderated by urban/rural location, local health care supply, race, insurance payer, age, pre-existing conditions, area socio-demographics, or other environmental risks (e.g. extreme heat, baseline air pollution)?
- iv.
- v.

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<sup>1</sup> After all required documents have been signed, typical production time is 30-60 days for a Limited or Identifiable Extract. Anticipate a longer production period for projects including a Finder File or creation of a Member Match File.

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3. Describe your methodology or how you will be using data from the Colorado All Payer Claims Database (CO APCD) to answer your research questions.

Our research team has created comprehensive wildfire smoke exposures, including smoke plumes measured from remote sensing data, overall and wildfire attributable air pollutant concentrations (e.g. particulate matter), and fire permiters. In addition, we have comprehensive data on other environmental events, such as days with extreme heat and measures of health care supply. These data will be merged to the APCD at the area-by-time level. The exact geographic units facilitating the merge will vary by measure (either census tract, ZIP, or county) as will the time units (e.g. prenatal exposure is measured during the pregnancy period; where as other exposure metrics will be daily or the count of days over a period such as month). In the APCD we will identify diagnoses and services using common code sets. Outcomes of particular interest for infants include gestational age at birth and birth weight and NICU related services. Maternal outcomes include gestational diabetes and other markers of maternal morbidity in addition to service utilization measures. Child outcomes include asthma exacerbations, emergency room visits, and hospitalization. Adult health outcomes include respiratory and cardiovascular related diagnoses, ER visits, and hospitalizations. Analyses will be based on a regression framework that includes the exposures of interest, geographic area fixed effects, time unit fixed effects, and covariates.

4. Explain how this project will benefit Colorado and its residents.<sup>2</sup>

Wildfire are increasing in size and intensity. The smoke plumes generated by wildfires can travel thousands of miles. Existing evidence, including studies in Colorado, suggest that pregnant people, infants, children and the elderly are particularly vulnerable to smoke exposure. Less is known about the specific conditions that are caused or exacerbated by smoke exposure, how smoke effects health service use across the continuum of care, how effects evolve over time, and the variation of effects across the population. Our results will help Colorado policy makers identify the populations and locations that are in most need of intervention and will help them forecast the budget implications of increased wildfire intensity.

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<sup>2</sup> It is a statutory requirement for all non-public releases of CO APCD data to benefit Colorado or its residents. Contributions to generalizable knowledge alone are not sufficient to satisfy this requirement.

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5. Describe how your project will improve health care quality, increase health care value, or improve health outcomes for Colorado residents.<sup>2</sup>

While existing evidence demonstrates the health burden of smoke we know little about how smoke exposure is being treated across the continuum of care. For example, we do not know if pregnant people exposed to smoke are encouraged to deliver at at risk appropriate facilities (e.g. those with intensive NICU wards) or if infants are delivered at lower risk facilities and then transferred. Our results will help shed new light on the existing process of care so that best practice guidelines can be created and communicated. Furthermore, by documenting the locations and populations most at risk, prevention activities (air filters, masking, education) can be efficiently targeted.

6. Health equity is defined as the state in which everyone has a fair and just opportunity to attain their highest level of health. Explain how your project addresses health equity.

In our previous work we have shown that Native American and rural infants are more likely to experience exposure to wildfire smoke. These are concerning patterns given that Native Americans already experience excess health burdens at birth. Furthermore, excess exposure in rural areas is concerning given that health care resources are often regionalized which has advantages, but limits the geographic availability of timely access to risk appropriate care. Our work will identify the ways in which the burden of wildfire smoke is exacerbating health equity concerns and suggest potential solutions.

7. Describe any publication you plan to develop based on your use of CO APCD data, its intended audience, and whether it will be made publicly available.

We intend to produce 3-6 publications that will primarily be written for academic audiences. Pursuant to federal funding guidelines the papers we write will be free open-access publications accessible to all people in Colorado. We will also work with stakeholders in the state (eg. Colorado Health Institute) about other avenues of communication that work best for the people of Colorado.

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## Data Matching and Linkage

### Finder File

A Finder File is a file you submit to CIVHC with information about a pre-selected cohort for matching to CO APCD data. Ask your CIVHC Contact for more information about this process and requirements for Finder File submission.

Will you provide CIVHC with a Finder File as part of this project?

- ☒ No  
☐ Yes

### Member Match File

A Member Match File is a file that CIVHC creates on your behalf to send to a registry or other outside entity to create a crosswalk connecting data from the CO APCD to the other entity's data.

Does this project require the creation of a Member Match File?

- ☐ No  
☒ Yes. Consult with your CIVHC Contact about completing a separate Data Element Selection Form specifying the data elements that should be used to create the Member Match File.

Answer the following:

Who will receive the Member Match File?

Colorado Hospital Association and Colorado Department of Public Health and Environment.

### Control Group

A Control Group is a group of individuals who can be used to compare against the cohort identified in the Finder File.

Will you need CIVHC to create a Control Group as part of this project?

- ☒ No  
☐ Yes. Consult with your CIVHC Contact about completing a separate Control Group Data Element Selection Form specifying the data elements that should be used to define the Control Group.



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### Linkage

Data Linkage is a method of joining data from different sources together to create a new data set.

Will the CO APCD data be linked to another data source?

- ☐ No
- ☒ Yes. Answer the following:

What is/are the other data source/s?
<p>We request CO APCD data be individually linked to (A) hospital discharges and emergency department visits from CHA; and (B) birth certificate records from the Department of Public Health and Environment. Data from (A) will be used to ascertain hospital/ER outcomes for patients that exit a CO APCD covered plan and become uninsured or obtain a non-covered plan. Data from (B) is essential for obtaining high quality demographic indicators that are either not captured by CO APCD or are relatively low quality (e.g. race). Furthermore, some birth certificate variables we request (e.g. NICU admission) will help us compare the characteristics of CO APCD patients to the general CO population observed in the full birth certificate files using the exact same set of variables. This will help us determine the generalizability of the CO APCD population.</p> <p>We will also link to wildfire exposure metrics, including smoke plumes, air pollutants, and indicators of local fire activity; other area-by-time environmental data (weather, non-fire related pollution); and other area-by-time covariates (local poverty; health care supply; etc). This linkage will be done at the area-by-time level, where the area and time units vary depending on the variables to be merged. Areas include either Census tracts, ZIP, or counties. Time units are daily or monthly.</p>
Who will perform the data linkage?
<p>CIVHC will facilitate linkages to hospital/ER data and birth certificate records by sending member match files to CHA and CDPHE. Data requestors will then link CO APCD, CHA, and CDPHE data sets via crosswalk tables, and will conduct the area-by-time linkage to wildfire exposures.</p>
What identifying data elements will be used to perform the data linkage?
<p>Hospital/ER and birth certificate records will be linked with SSN, Name, DOB, Gender via standard member match process. Only CDPHE and CHA will receive these identifiers.</p> <p>Data requestors will then link data sets using CO APCD Member Composite ID/Member ID and CHA/CDPHE member identifiers. Wildfire exposures will be linked by geography and date (see above).</p>

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What non-CO APCD data elements will appear in the new linked file?

Data elements from CHA will include dates of service, payer, diagnosis and procedure codes, and facility ID and facility ZIP. Birth certificate data elements include mother's race/ethnicity and foreign born status, mother's education, mother's age, prenatal care use, smoking status, maternal complications, birth modality (c-section, vaginal birth, etc), birth month/year, gestational age, birth weight, and NICU admission, mother's residency county and birth occurrence county.

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## Data Inclusion Criteria

Make selections in the following sections based on what data you want to have included in this extract. If you will be creating a Control Group, complete this section for your study population and not the Control Group.

### Protected Health Information (PHI)

Indicate which [Protected Health Information](#) data elements you require for your project purpose:

Available for Limited and Identifiable extracts:		
<input checked="" type="checkbox"/> Member 5-Digit Zip Code	<input checked="" type="checkbox"/> Member County	<input type="checkbox"/> Member City
<input checked="" type="checkbox"/> Member Dates of Service	<input checked="" type="checkbox"/> Member Eligibility Dates	<input type="checkbox"/> Claim Paid Dates
<input type="checkbox"/> Employer Name	<input checked="" type="checkbox"/> Member <a href="#">Census Tract</a>	<input type="checkbox"/> Member <a href="#">Census Block</a>
<input type="checkbox"/> Member <a href="#">Census Block Group</a>		
Available for Identifiable extracts only (see also <a href="#">Identifiable Data Use Approval</a> ):		
<input type="checkbox"/> Member Name	<input checked="" type="checkbox"/> Member Date of Birth (if requesting more than year only)	
<input type="checkbox"/> Member Street Address	<input type="checkbox"/> Member Latitude and Longitude	
Provide detailed justification for the inclusion of all PHI data selected above, and explain how its inclusion meets the <a href="#">Minimum Necessary Requirement</a> . <sup>3</sup>		
<p>Specific dates of birth, dates of service, and geographic elements are needed to accurately define exposures. Dates of birth are particularly useful for constructing longitudinal exposure measures. For example, to examine of exposure in the perinatal period results in increased asthma rates later in childhood. Member eligibility dates are needed to ascertain person-time “at-risk” of having an observed outcome. Note: full DOB only required for members aged 0-5 years; Month and Year of Birth only required for members aged 6-18.</p>		

<sup>3</sup> Limited and Identifiable extracts must adhere to the [Minimum Necessary Requirement](#) under the [HIPAA Privacy Rule](#); only that data required to answer the project purpose can be included in the request.

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### Line(s) of Business

- ☒ Commercial Payers
- ☒ Health First Colorado (Colorado's Medicaid and CHP+ programs)<sup>4</sup>
- ☐ Medicare Advantage
- ☐ Medicare Fee for Service (FFS)<sup>5</sup>

### Year(s) of Data

- |   |  |  |  |  |  |
|---|--|--|--|--|--|
| <input type="checkbox"/> 2012                         | <input type="checkbox"/> 2013            | <input type="checkbox"/> 2014            | <input type="checkbox"/> 2015            | <input checked="" type="checkbox"/> 2016 | <input checked="" type="checkbox"/> 2017 |
| <input checked="" type="checkbox"/> 2018              | <input checked="" type="checkbox"/> 2019 | <input checked="" type="checkbox"/> 2020 | <input checked="" type="checkbox"/> 2021 | <input checked="" type="checkbox"/> 2022 | <input checked="" type="checkbox"/> 2023 |
| <input checked="" type="checkbox"/> 2024 <sup>6</sup> |  |  |  |  |  |

### Claim Type(s)

- |  |   |  |
|--|---|--|
| <input checked="" type="checkbox"/> Inpatient Facility | <input checked="" type="checkbox"/> Outpatient Facility | <input checked="" type="checkbox"/> Professional |
| <input checked="" type="checkbox"/> Pharmacy           | <input checked="" type="checkbox"/> Dental              |  |

### Financial Detail by Line Item

- |  |  |   |
|--|--|---|
| <input type="checkbox"/> Charged Amount                | <input checked="" type="checkbox"/> Allowed Amount         | <input checked="" type="checkbox"/> Plan Paid Amount  |
| <input type="checkbox"/> Plan Pre-Paid Amount          | <input checked="" type="checkbox"/> Member Copay           | <input checked="" type="checkbox"/> Member Deductible |
| <input checked="" type="checkbox"/> Member Coinsurance | <input checked="" type="checkbox"/> Total Member Liability |   |

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<sup>4</sup> Medicaid-only data requests must be approved by the Colorado Department of Health Care Policy and Financing.

<sup>5</sup> Medicare FFS data are not available for all requests and must go through a separate approval process.

<sup>6</sup> This year's data is incomplete and not fully adjudicated. Consult with your CIVHC Contact to find out what data is available at the time of your request.

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### Filter Criteria – Services, Providers, Facilities

If you need data for specific services, providers and/or facilities, specify that filter criteria below (ask your CIVHC Contact about including an additional file with this application for large code lists):

ICD Diagnosis Code(s):
Procedure(s) (list CPT, HCPCS, DRG, ICD, and/or CDT codes):
Drug(s) (list pharmacy NDC and/or HCPCS codes):
Facility Type(s):
Facilities (list NPIs and/or Pharmacy IDs):
Facilities within these geographical areas (list county, zip code, <a href="#">Census Tract</a> , etc.):
Provider Type(s):
Provider(s) (list NPIs):
Providers within these geographical areas (list county, zip code, <a href="#">Census Tract</a> , etc.):
Specific payers (minimum of five):

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Other claim specification:

### Filter Criteria – Members/Patients

If you need data for specific member/patient groups, specify that filter criteria below (ask your CIVHC Contact about including an additional file with this application for large code lists):

Ages:		
0-64 years		
<input type="checkbox"/> At the time of service	<input checked="" type="checkbox"/> At year end	<input type="checkbox"/> By another anchor date: <i>Specify here</i>
With these ICD Diagnosis Code(s):		
Who have had the following procedure(s) (list CPT, HCPCS, DRG, ICD, and/or CDT codes):		
Within these geographical areas (list county, zip code, <a href="#">Census Tract</a> , etc.):		

### Value-Add Data Elements

- ☐ [Medicare Severity Diagnosis Related Group](#) Codes (MS-DRGs)
- ☐ [3M All Patient Refined Diagnosis Related Group](#) Codes (3M APR DRGs)
- ☐ [Medicare Repricer](#) (available at the claim line level)
- ☐ Fields from the [American Community Survey](#) (available at the Census Tract level):

*Specify here*

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## Additional Documentation

### Data Element Selection Form (DESF)

The Data Release Application must be accompanied by a completed Data Element Selection Form. Ask your CIVHC Contact for more information about completing this form.

- ☒ By checking this box, the Client Organization confirms that the Data Element Selection Form has been completed.
- ☒ If applicable, by checking this box the Client Organization confirms that a separate Member Match File Data Element Selection Form has been completed.
- ☐ If applicable, by checking this box the Client Organization confirms that a separate Control Group Data Element Selection Form has been completed.

### Identifiable Data Use Approval

If you are requesting [Identifiable](#) information, approval from an [Institutional Review Board \(IRB\)](#) or a [Privacy Board](#) is required before such data can be released.

- ☐ Not applicable; the Client Organization is requesting a Limited Extract.

### Approval Type

- ☒ IRB Approval
- ☐ Privacy Board Approval

### Approval Type

- ☒ Approval request not yet submitted.  
Anticipated submission date: 4/15/2025
- ☐ Approval request submitted and under review.  
Anticipated project approval date:
- ☐ Approval already received.

### Approval Documentation

- ☐ By checking this box, the Client Organization confirms that the IRB or Privacy Board **application and approval documents** have been provided to CIVHC.

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### Data Management Plan

An organization requesting CO APCD data must submit an organizational Data Management Plan to CIVHC outlining the organization's data security and data management policies and procedures to safeguard the data. This Data Management Plan must be approved by CIVHC prior to any data release.

Date Submitted to CIVHC:	
Date Approved by CIVHC:	

## Client Acknowledgements and Signatures

### Report or Product Distribution

If your project results in the production of a report for public distribution in any format (print, electronic, lecture, slides, etc.), including peer-reviewed publication, it must be submitted to CIVHC for review prior to public release. CIVHC will assess compliance with [CMS Cell Size Suppression Policy](#), risk of inferential identification, CIVHC and CO APCD citations, and consistency with the purpose and methodology described in this Data Release Application. CIVHC will not assess the accuracy of the study results or attempt to recreate results.

This requirement is further defined in the Data Use Agreement. Failure to pursue and obtain CIVHC approval prior to publication will be a violation of the Data Use Agreement and may put the organization's future access to data from the CO APCD at risk.

☒ By checking this box, the Client Organization acknowledges this requirement.

### Data Destruction Period

All data must be destroyed within 30 days of the project end date. If your project end date changes from this application, please reach out to your CIVHC Contact for a project extension request form.

☒ By checking this box, the Client Organization acknowledges that CIVHC's [Data Destruction Certificate](#)<sup>7</sup> must be completed and returned to [DataCompliance@CIVHC.org](mailto:DataCompliance@CIVHC.org) by 10/30/2030 based on the [Anticipated Project End Date](#).

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<sup>7</sup> Available on the [Data Release Application and Documents](#) page of CIVHC's website under *Privacy, Security, and Regulatory Information*.



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### Data Users

List any individuals that will be working with the data and whether they should receive ongoing communications from CIVHC regarding use of CO APCD data (data warehouse release notes, data user group communications, etc.).

The Data Use Agreement must be updated every time an individual is granted access to the data during the project. Reach out to your CIVHC Contact for information about the amendment process.

Receive Data User Communications from CIVHC	Full Name	Title/Role	Organization	Email Address
<input type="checkbox"/>	<b>Michel Boudreaux</b>	Associate Professor	University of Maryland	mhb@umd.edu
<input type="checkbox"/>	<b>Rebecca Gourevitch</b>	Assistant Professor	University of Maryland	rgourevi@umd.edu
<input type="checkbox"/>	<b>Marcos Fabian</b>	Graduate Research Assistant	University of Maryland	mfbnco@umd.edu
<input type="checkbox"/>	<b>Sunjung Yoon</b>	Graduate Research Assistant	University of Maryland	sy527@umd.edu
<input type="checkbox"/>				
<input type="checkbox"/>				
<input type="checkbox"/>				
<input type="checkbox"/>				
<input type="checkbox"/>				
<input type="checkbox"/>				

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### Data Release Application Version Approvals

The Client Organization has reviewed and confirms that the final version number of the Data Release Application reflected below correctly represents the project objectives.

Version	Checkpoint
V.03	Presented at CIVHC Application Review
V.00	Presented to the Data Release Review Committee (DRRC)
V.00	Final version approved for production

CIVHC Sign-Off		Receiving Organization Sign-Off	
Signature:		Signature:	
Name:		Name:	
Title:		Title:	
Date:		Date:	

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### Data Element Selection Form Version Approvals

The Client Organization has reviewed and confirms that the final version number of the Data Element Selection Form reflected below correctly represents the data specifications needed to meet the project objectives.

Version	Checkpoint
V.04	Presented at CIVHC Application Review
V.00	Presented to the Data Release Review Committee (DRRC)
V.00	Final version approved for production

CIVHC Sign-Off		Receiving Organization Sign-Off	
Signature:		Signature:	
Name:		Name:	
Title:		Title:	
Date:		Date:	