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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)
6/12/2024	V.01	Initial version drafted with client.	Kimi Landry, Research/Eval Analyst
7/10/2024	V.02	Revised version drafted with client.	Christopher Behrer and Martha Meyer
7/17/2024	V.03	PHI information added	Kimi Landry
7/23/2024	V.04	Changes made after Kelsey review	Kimi Landry
7/24/2024	V.05	Made changes after app review	Kimi Landry
	V.06		
	V.07		
	V.08		
	V.09		
	V.10		

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Data Requestor Details

General Project Details

Project Title:	Effects of Price Transparency on Private Equity Acquisitions and Healthcare Prices: Evidence from Physician Groups and Outpatient Practices
Application Start Date:	6/12/2024
Requested Project Delivery Date:	9/1/2024
Client Organization (legal name):	Duke University
Client Organization Address:	2080 Duke University Road Durham, NC 27708
To be completed by CIVHC staff	
CIVHC Contact (full name, complete title):	Kimi Landry
Project Number:	24.515.1
Condensed Project Title:	HD4A Duke D128546

Project Contacts

Project Contact Name:	Christopher Behrer, MA
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Analytic Contact Name:	Kyle Mulligan
Title:	Research Computing Data Security Specialist
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Invoice Contact Name:	Zach Johnson
Title:	Director of Finance & Strategic Planning
Email:	zach.johnson@duke.edu
Phone Number:	919-613-7378
Data Release Fee Signatory:	Keith Hurka-Owen
Title:	Executive Director, Office of Research Support
Email:	kpho@duke.edu
Phone Number:	919-681-8687
Data Use Agreement Signatory:	Keith Hurka-Owen
Title:	Executive Director, Office of Research Support
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Project Schedule and Purpose

Proposed Project Start Date[1]:	6/12/2024
Anticipated Project End Date:	6/14/2026
Proposed Publication or Release Date:	6/14/2026

1. Detail the specific research question(s) you are trying to answer or problem(s) you are trying to solve with this data request. Please list and number the individual questions.

The project aims to investigate the impact of federal price transparency regulations on the behavior of private equity (PE) firms in acquiring physician groups and outpatient practices, as well as the subsequent effects on healthcare prices. Recent price transparency regulations were designed to control healthcare costs by providing consumers with price information, thereby inducing price competition among providers and lowering prices. However, this price information is universally available and may be used by other actors in the healthcare market, such as PE firms, in ways that could generate unintended effects. Specifically, the research seeks to determine whether PE firms are using the transparency data to identify low-cost providers as profitable acquisition targets and then leverage the price information to negotiate higher prices post-acquisition. This investigation is crucial for understanding potential unintended consequences of price transparency regulations on healthcare markets and prices.

Individual research questions:

  i. Did the number or size of private equity (PE) acquisitions of physician practices change after price transparency?

  ii. After price transparency, were PE acquisitions of physician practices concentrated among low-priced providers?

  iii. How did prices of acquired practices change following acquisition?

  iv. In Colorado, did PE acquisitions of physician practices become more concentrated among low-priced providers after price transparency?

  v. In Colorado, did price changes after PE acquisition change from before to after price transparency?

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[1] 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.

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

Overview: The study will utilize the Colorado All Payer Claims Database (CO APCD) outpatient claims data in combination with other datasets to investigate the impact of price transparency on private equity (PE) acquisitions of physician groups and outpatient practices. The methodology involves interrupted time series (ITS) and difference-in-differences (DiD) approaches to analyze changes over time and differences between groups, respectively.

Data Sources:

1. **CO APCD Outpatient Claims Data:** To track pricing and service utilization patterns for outpatient practices.

2. **Transparency in Coverage Data:** To provide the context of price transparency regulations.

3. **CMS' Provider Enrollment, Chain, and Ownership System (PECOS) Data:** To identify ownership changes and link practices to PE firms.

4. **Kaiser Health News PE Acquisition Data:** To provide detailed information on PE acquisitions.

Methodological Steps

1. Data Collection and Integration

- **Compile Data:** Gather CO APCD outpatient claims data, Transparency in Coverage Data, PECOS data, and PE acquisition data from Kaiser Health News.

- **Merge Datasets:** Integrate these datasets to create a comprehensive dataset that links PE acquisitions with outpatient practice pricing and ownership information.

2. Identify Key Variables

- **Dependent Variables:** Number and size of PE acquisitions, prices of services provided by acquired practices, concentration of acquisitions among low-priced providers.

- **Independent Variables:** Implementation of price transparency regulations, practice characteristics (e.g., size, location, specialty).

3. Interrupted Time Series (ITS) Analysis

- **Objective:** To examine trends in the number and size of PE acquisitions before and after the implementation of price transparency regulations.

- **Procedure:**

    o Define the intervention point (July 2022) when price transparency regulations took effect.

    o Use ITS to analyze changes in the trends of PE acquisitions over time, comparing pre- and post-intervention periods.

4. Difference-in-Differences (DiD) Analysis

- **Objective:** To compare changes in prices and acquisition patterns between practices acquired by PE firms and those that were not, pre- and post-price transparency.

- **Procedure:**

    o Identify treatment group (practices acquired by PE firms) and control group (practices not acquired by PE firms).

    o Apply DiD to assess the impact of price transparency on pricing and acquisition concentration among low-priced providers, comparing pre- and post-intervention periods across both groups.

5. Specific Analyses for Research Questions

1. **Change in Number or Size of PE Acquisitions (RQ1):**

    o Use ITS to analyze trends in the number and size of acquisitions over time.

    o Compare these trends before and after the price transparency regulation implementation.

2. **Concentration Among Low-Priced Providers (RQ2 and RQ4):**

    o Identify low-priced providers using baseline pricing data.

> - o   Use DiD to compare the concentration of PE acquisitions among low-priced providers before and after price transparency, both nationally and specifically in Colorado.
> 3. **Price Changes Following Acquisition (RQ3 and RQ5):**
>   - o   Track pricing data for practices pre- and post-acquisition.
>   - o   Use DiD to compare price changes in practices acquired by PE firms versus those not acquired, considering pre- and post-intervention periods.
>
> **Summary**
>
> The study will leverage CO APCD data, combined with other relevant datasets, to apply robust statistical methods (ITS and DiD) to answer critical questions about the impact of price transparency regulations on PE acquisitions and healthcare pricing. By carefully integrating and analyzing these datasets, the study aims to provide comprehensive insights into how transparency regulations influence market dynamics and pricing strategies in the healthcare sector.

3.   Explain how this project will benefit Colorado and its residents.[2]

> The project aims to provide significant benefits to Colorado residents by enhancing their understanding of the impacts of price transparency on healthcare costs and private equity (PE) acquisitions. By shedding light on how price transparency regulations affect the pricing of outpatient practices and physician groups, the research will help residents make more informed healthcare decisions. Additionally, identifying any unintended consequences, such as PE firms targeting low-cost providers and raising prices, will inform policymakers and guide more effective regulation. The study's findings will also support improved healthcare cost control by recommending policies that ensure transparency regulations achieve their intended goals without being exploited. Empowering residents with detailed pricing information will enable better-informed consumer choices and help them select providers based on comprehensive data. By addressing cost barriers and maintaining competitive pricing, the project aims to enhance access to affordable healthcare. Furthermore, through education and outreach efforts, the project will foster an informed public dialogue about healthcare costs and policy implications, ensuring that residents are well-equipped to navigate the healthcare market effectively.

4.   Describe how your project will improve health care quality, increase health care value, or improve health outcomes for Colorado residents.[2]

> The project aims to enhance healthcare quality, increase value, and improve health outcomes for Colorado residents by leveraging price transparency regulations. By identifying the impact of

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[2] 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.

private equity (PE) acquisitions on healthcare practices, the study can inform best practices and regulatory measures to maintain high standards of care. Enhanced price competition, driven by transparency, can reduce costs while maintaining quality, thus increasing healthcare value. The findings can also promote value-based care models and cost-efficiency strategies. Ensuring access to affordable care through competitive pricing will enable more residents to receive necessary healthcare services, leading to better health outcomes. Empowering consumers with transparent pricing information will allow informed decision-making, further contributing to improved health outcomes across the state.

5. 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.

The project "Effects of Price Transparency on Private Equity Acquisitions and Healthcare Prices: Evidence from Physician Groups and Outpatient Practices" contributes significantly to addressing health equity in Colorado through its focus on how price transparency regulations impact healthcare access and affordability, especially for underserved populations. By investigating the effects of private equity acquisitions on healthcare prices, the study aims to prevent potential price hikes that could disproportionately affect vulnerable communities. Transparent pricing information empowers all residents, including those from disadvantaged backgrounds, to make informed healthcare decisions and choose cost-effective providers, thereby promoting equitable access to high-quality care. The project's findings will inform policy recommendations aimed at safeguarding affordability and quality, ensuring that healthcare benefits are distributed equitably across socioeconomic groups. By advocating for policies that support low-cost providers and mitigate negative impacts of PE acquisitions, the project strives to create a healthcare environment that fosters equity and improves health outcomes for all Colorado residents.

6. 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.

Plan to develop manuscripts to submit for publication in academic journals, presentations which will be given to academic and possibly policy audiences, and blog posts or policy briefs intended for policy audiences, RWJF, and CIVHC.

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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?

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 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?
External Databases on PE Acquisitions (Kaiser, Capital IQ, PitchBook, Preqin, and SDC Platinum), Transparency in Coverage Dataset (TiC)
Who will perform the data linkage?
Christopher Behrer
What identifying data elements will be used to perform the data linkage?
NPI and/or provider/facility name and address.
What non-CO APCD data elements will appear in the new linked file?
Data on PE acquisitions, TiC data

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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:		
☐ Member 5-Digit Zip Code	☐ Member County	☐ Member City
☒ Member Dates of Service	☐ Member Eligibility Dates	☐ Employer Name
☐ Member Census Tract	☐ Member Census Block	☐ Member Census Block Group
Available for Identifiable extracts only (see also Identifiable Data Use Approval):		
☐ Member Name	☐ Member Date of Birth (if requesting more than year only)	
☐ Member Street Address	☐ Member Latitude and Longitude	
☐ Employer Tax ID		
Provide detailed justification for the inclusion of all PHI data selected above, and explain how its inclusion meets the Minimum Necessary Requirement.[3]		
I request dates of service because I plan to study changes in prices over time, before vs after acquisitions of physician practices by private equity (PE) firms. To assign a price for a service to before vs after an acquisition, I need the date of services.		

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[3] 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)[4]
☒ Medicare Advantage
☒ Medicare Fee for Service (FFS)[5]

Year(s) of Data

☐ 2012   ☐ 2013   ☐ 2014   ☐ 2015   ☐ 2016   ☐ 2017
☒ 2018   ☒ 2019   ☒ 2020   ☒ 2021   ☒ 2022   ☒ 2023[6]

Claim Type(s)

☐ Inpatient Facility   ☒ Outpatient Facility   ☒ Professional
☐ Pharmacy   ☐ Dental

Financial Detail by Line Item

☒ Charged Amount   ☒ Allowed Amount   ☒ Plan Paid Amount
☒ Plan Pre-Paid Amount ☒ Member Copay   ☒ Member Deductible
☒ Member Coinsurance   ☒ Total Member Liability

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[4] Medicaid-only data requests must be approved by the Colorado Department of Health Care Policy and Financing.
[5] Medicare FFS data are not available for all requests and must go through a separate approval process.
[6] This year's data is not fully adjudicated.

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

Other claim specification:
I request two sets of claims:
1. All outpatient facility claims (claim type = 2)
2. All professional claims at outpatient facilities ((claim type = 3) AND (place of service in (11,13,14,17,19,20,22,31,32,34,49,50,53,55,56,57,58,62,65,72,81))

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:		
I request all ages. Prior academic work studying private equity acquisitions has focused on adult outpatient practices and hospitals, I am not aware of research studying acquisitions of outpatient pediatric practices. I do not filter out those under 18 years old so that I can fill this gap in the literature.		
☒ At the time of service	☐ At year end	☐ By another anchor date: *Specify here*
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, Census Tract, 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: 7/10/2024

- ☐ 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:	11/8/2023
Date Approved by CIVHC:	

Client Acknowledgements and Signatures

Change Agent Index

CIVHC can publicly share the Client Organization's name in its Change Agent Index?

- ☒ Yes
- ☐ No

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[7] must be completed and returned to DataCompliance@CIVHC.org by 8/12/2026 based on the Anticipated Project End Date.

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Data Users

List any individuals that will be working with the data. The Data Use Agreement must be updated through your CIVHC Contact every time individuals are granted access to the data during the course of the project.

Full Name	Title/Role	Organization
Kyle Mulligan	Senior IT Analyst	Duke University
Christopher Behrer	Principal Investigator, data analyst	Duke University
Ryan McDevitt	Advisor	Duke University
Kate Bundorf	Committee Member	Duke University
Manoj Mohanan	Advisor	Duke University
James Roberts	Advisor	Duke University
Emily Cuddy	Advisor	Duke University

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[7] Available on the Data Release Application and Documents page of CIVHC's website under *Privacy, Security, and Regulatory Information*.

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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.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:	