center
for health
information
and analysis

Application for Massachusetts All-Payer Claims Data (Non-Government)
[Exhibit A – Data Application]

I. INSTRUCTIONS

This form is required for all Applicants, Agencies, or Organizations, hereinafter referred to as "Organization", except Government Agencies as defined in 957 CMR 5.02, requesting protected health information. All Organizations must also complete the Data Management Plan, and attach it to this Application. The Application and the Data Management Plan must be signed by an authorized signatory. This Application and the Data Management Plan will be used by CHIA to determine whether the request meets the criteria for data release, pursuant to 957 CMR 5.00. Please complete the Application documents fully and accurately. Prior to receiving CHIA Data, the Organization must execute CHIA's Data Use Agreement. Organizations may wish to review that document prior to submitting this Application.

Before completing this Application, please review the data request information on CHIA's website:

- Data Availability
- Fee Schedule
- Data Request Process

After reviewing the information on the website and this Application, please contact CHIA at apcd.data@chiamass.gov if you have additional questions about how to complete this form.

The Application and all attachments must be uploaded to IRBNet. All Application documents can be found on the CHIA website.

Information submitted as part of the Application may be subject to verification during the review process or during any audit review conducted at CHIA's discretion.

Applications will not be reviewed until the Application and all supporting documents are complete and the required application fee is received.

A Fee Remittance Form with instructions for submitting the application fee is available on the CHIA website. If you are requesting a fee waiver, a copy of the Fee Remittance Form and any supporting documentation must be uploaded to IRBNet. Please be aware that if your research is funded and under that funding you are required to release raw data to the funding source, you may not receive CHIA Data.

II. FEE INFORMATION

1. Consult the most current Fee Schedule for All-Payer Claims Database data.

2. After reviewing the Fee Schedule, if you have any questions about the application or data fees, contact apcd.data@chiamass.gov.

3. If you believe that you qualify for a fee waiver, complete and submit the Fee Remittance Form and attach it and all required supporting documentation with your application. Refer to the Fee Schedule (effective Feb 1, 2017) for fee waiver criteria.

4. Applications will not be reviewed until the application fee is received.

5. Data for approved Applications will not be released until the payment for the Data is received.

III. ORGANIZATION & INVESTIGATOR INFORMATION

Project Title:	U.S. Hospital Consolidation, Demographic Transition, and the Determinants of Quality of Care
IRBNet Number:	Click here to enter text.
Organization Requesting Data (Recipient):	National Bureau of Economic Research
Organization Website:	**www.nber.org**
Authorized Signatory for Organization:	**Alterra Milone**
Title:	Director of Research and Grants Management
E-Mail Address:	alterra@nber.org
Telephone Number:	Click here to enter text.
Address, City/Town, State, Zip Code:	1050 Massachusetts Ave, 3rd Floor, Cambridge, MA 02138
Data Custodian: **(individual responsible for organizing, storing, and archiving Data)**	**Mohan Ramanujan**
Title:	Data Custodian, Unix Administrator
E-Mail Address:	mohan@nber.org
Telephone Number:	617-588-0367
Address, City/Town, State, Zip Code:	1050 Massachusetts Ave, 3rd Floor, Cambridge, MA 02138
Primary Investigator (Applicant): **(individual responsible for the research team using the Data)**	Bradley Setzler
Title:	NBER Faculty Research Fellow
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Telephone Number:	(814) 863-4837
Address, City/Town, State, Zip Code:	517 Kern Building University Park, PA 16802
Names of Co-Investigators:	Eric San Miguel Flores
E-Mail Addresses of Co-Investigators:	eric.sanmiguel@psu.edu

IV. PROJECT INFORMATION

IMPORTANT NOTE: Organization represents that the statements made below as well as in any study or research protocol or project plan, or other documents submitted to CHIA in support of the Data Application are complete and accurate and represent the total use of the CHIA Data requested. Any and all CHIA Data released to the Organization under an approved application may ONLY be used for the express purposes identified in this section by the Organization, and for no other purposes. Use of CHIA Data for other purposes requires a separate Data Application to CHIA **or** written request to CHIA, with approval being subject to CHIA's regulatory restrictions and approval process. Unauthorized use is a material violation of your Organizations's Data Use Agreement with CHIA.

1. What will be the use of the CHIA Data requested? [Check all that apply]

☐ Epidemiological	☐ Health planning/resource allocation	☐Cost trends
☒ Longitudinal Research	☒ Quality of care assessment	☐ Rate setting
☐ Reference tool	☒ Research studies	☐ Severity index tool (or other derived input)
☐ Surveillance	☒ Student research	☐ Utilization review of resources
☐ Inclusion in a product	☐ Other (describe in box below)	

Click here to enter text.

2. Provide an abstract or brief summary of the specific purpose and objectives of your Project. This description should include the research questions and/or hypotheses the project will attempt to address, or describe the intended product or report that will be derived from the requested data and how this product will be used. Include a brief summary of the pertinent literature with citations, if applicable.

Research Questions

In this project, we aim to answer the following questions:

1. How have hospitals leveraged their simultaneous gains in market power generated by mergers and acquisitions over patients and employees? How do mergers between hospitals affect prices paid by patients, the number of patients treated by each hospital, wages and employment for hospital workers, and the quality of care received by patients?
2. How do hospitals respond to demographic changes that affect the fraction of commercial vs. Medicare patients, given the vast differences in payments received by hospitals from the two groups? In particular, we focus on how hospitals adjust their expenditures per patient, labor composition, and quality of care when they face a higher percentage of Medicare-enrolled patients in their market.

Background

In recent years, the US hospital sector has experienced a massive wave of consolidation, as more than 1,000 hospital mergers and acquisitions have concentrated local markets. We use hospital-level balance-sheet and employment records, system-level ownership linkages, and patient satisfaction surveys to show empirically that hospitals not only raised average revenues per discharges and lowered wages after consolidating, but also reduced the number of patients treated, the number of workers employed, and the quality of care provided to each patient.

Using data from Medicare cost reports submitted by all Medicare-certified hospitals in the United States, we find preliminary evidence that hospitals located in counties that experience an increase in the fraction of their population eligible for Medicare decrease their expenditures per patient. We find that although these hospitals do not significantly change their number of patient care workers per discharge, they pay lower average wages and employ fewer high-skilled (registered) nurses. Additionally, in this project, we aim to understand how an increase in the share of Medicare-insured patients a hospital faces caused by demographic changes will influence commercial rates negotiated between hospitals and insurance companies. The share of Medicare-insured patients may affect a hospital's ability to bargain over prices if it lowers the value it adds to insurance companies (because of fewer commercially insured patients in that area or decreases in quality generated by decreased expenditures per patient).

Related Literature

There is a broad literature that examines how mergers between hospitals increase prices (Brot-Goldberg, Cooper, Craig, et al. 2024; Brand, Garmon, and Rosenbaum 2023; Cooper, Craig, Gaynor, et al. 2019; Dafny, Ho, and Lee 2019). Similarly, Prager and Schmitt (2021) show that mergers between hospitals that significantly increase concentration lead to wage reductions for hospital workers. We add to this literature by empirically showing that mergers between hospitals jointly increase prices, lower the number of patients treated, decrease wages and employment for healthcare workers, and reduce the quality of care received by patients. To interpret these findings, we develop a novel framework for merger evaluation in which firms face both a downward-sloping product demand curve and an upward-sloping labor supply curve.

A vast body of literature studies the impact of changes in Medicare rates on patient-level outcomes (Wu & Shen, 2014; Shen & Wu, 2016). Similarly, there is a broad literature that examines how hospitals "cost-shift" (raise their commercial prices) in reaction to decreases in Medicare rates (White, 2013; Frakt, 2011; Wu, 2010). Finally, a third strand of literature examines the relationship between hospitals' financial performance and quality outcomes (Lindrooth et al., 2013; Bernard

& Encinosa, 2005). Relative to these papers, we want to study how hospitals change expenditures per patient, labor composition, and commercial prices as a consequence of an increase in the fraction of Medicare-enrolled patients in the market they serve.

3. Has an Institutional Review Board (IRB) reviewed your Project?

☒ Yes [*If yes, a copy of the approval letter and protocol must be included with the Application package on IRBNet.*]
☐ No, this Project is not human subject research and does not require IRB review.

4. **Research Methodology**: Applications must include either the IRB protocol or a written description of the Project methodology (typically 1-2 pages), which should state the Project objectives and/or identify relevant research questions. This document must be included with the Application package on IRBNet and must provide sufficient detail to allow CHIA to understand how the Data will be used to meet objectives or address research questions.

V. PUBLIC INTEREST

1. Briefly explain why completing this Project is in the public interest. Use quantitative indicators of public health importance where possible, for example, numbers of deaths or incident cases; age-adjusted, age-specific, or crude rates; or years of potential life lost. *Uses that serve the public interest under CHIA regulations include, but are not limited to: health cost and utilization analysis to formulate public policy; studies that promote improvement in population health, health care quality or access; and health planning tied to evaluation or improvement of Massachusetts state government initiatives.*

This project seeks to answer two important questions:

1. How do mergers between hospitals affect prices paid by patients, the number of patients treated by each hospital, wages and employment for hospital workers, and the quality of care received by patients?

This question is relevant to public policies for several reasons. First, merger evaluation typically focuses on how price increases decrease consumer (patient) welfare. In our paper, we provide a framework that allows researchers and policymakers to additionally quantify the welfare effects of changes in the quality of patient care, wage reductions, and decreases in employment for healthcare workers caused by mergers. Second, we propose a model that rationalizes all of the observed effects of hospital mergers that policymakers can use to predict how mergers will affect prices, the number of patients treated, quality of care, and wages and employment for hospital workers based on product and labor market characteristics.

2. How do hospitals respond to an increase in the fraction of Medicare-insured patients they serve caused by an aging population?

This question is relevant to public policies for two reasons. First, there is an ample body of evidence that shows that Medicare rates and poor financial performance for hospitals lead to lower quality of care. Given the significant differences between Medicare and commercial rates (which tend to be much higher), an increase in the fraction of Medicare patients (such as the one that would be caused by the projected increase in the number of people over 65) could lead to hospitals facing financial difficulties and lowering their quality of care. Although a vast amount of literature studies how hospitals react to changes in Medicare rates, much less is known about how hospitals adjust their quality of care when facing changes in their patient-mix composition caused by an aging population. Second, this project aims to understand how an increase in the share of Medicare-enrolled patients caused by demographic changes affects commercial rates negotiated between hospitals and commercial insurers. Hospitals may decrease the financial impact of an increase in the share of Medicare patients by charging higher rates to commercially insured patients. Knowing whether hospitals do this in practice is relevant to the public interest since it would lead to higher private spending on healthcare.

VI. DATASETS REQUESTED

The Massachusetts All-Payer Claims Database is comprised of medical, pharmacy, and dental claims and information from the member eligibility, provider, and product files that are collected from health insurance payers licensed to operate in the Commonwealth of Massachusetts. This information encompasses public and private payers as well as data from fully-insured and self-insured plans. APCD data are refreshed and updated annually and made available to approved data users. For more information about APCD Data, including available years of data and a full list of elements in the database please refer to layouts, data dictionaries and similar documentation included on CHIA's website.

Data requests are typically fulfilled on a one time basis, however; certain Projects may require future years of data that will become available in a subsequent release. Projects that anticipate a need for future years of data may request to be considered for a subscription. Approved subscriptions will receive, upon request, the same data files and data elements included in the initial Release annually or as available. Please note that approved subscription requests are subject to the Data Use Agreement, will require payment of fees for additional Data for Non-Government Entities, and subject to the limitation that the Data can be used only in support of the approved Project.

1. Please indicate below whether this is a one-time request, or if the described Project will require a subscription.
   ☒ One-Time Request **OR** ☐ Subscription
2. CHIA is currently supporting requests for claims data from 2016 to 2022. Requests made outside of these years may not be supported by CHIA and will be considered on a case-by-case basis. Please specify the years of data that are being requested:

   2018 – 2022 (all years included in the 2022 files)

3. Specify below the data files requested for this Project, and provide your justification for requesting *each* file.

☒ **Medical Claims**
Describe how your research objectives require Medical Claims data: We plan to use the Medical Claims data for two purposes. First, we plan to use information related to patient-level demographics, diagnoses, and payments to estimate hospitals' price indexes following Brot-Goldberg et al. (2024). We plan to use these price indexes to measure how commercial rates change when hospitals face an increase in the share of Medicare patients or following a merger. Second, in order to understand the mechanisms through which commercial rates change, we plan to estimate a hospital demand and bargaining model following Gowrisankaran et al. (2015). To estimate a hospital demand model, we need information on patients' choices of healthcare providers, which are included in the medical claims data.
☐ **Pharmacy Claims**
Describe how your research objectives require Pharmacy Claims data: Click here to enter text.
☐ **Dental Claims**

Describe how your research objectives require Dental Claims data:

Click here to enter text.

☒ **Member Eligibility**

Describe how your research objectives require Member Eligibility data:

We need patient-level information on patients' demographic characteristics to estimate how patient-level variables affect the probability of a patient choosing a specific hospital. For instance, we need information on the patient's home address and zip code to estimate the parameter associated with the cost of traveling from the patient's home address to the hospital. These variables are necessary to estimate a hospital demand model like the one in Gowrisankaran et al. (2015).

☐ **Provider**

Describe how your research objectives require Provider data:

☒ **Product**

Describe how your research objectives require Product data:

We need information on the insurance products available in a market to model how hospitals bargain with insurance companies over commercial prices and how commercial prices negotiated between hospitals and insurers will affect how much patients react to changes in commercial prices.

VII. DATA ENHANCEMENTS REQUESTED

State and federal privacy laws limit the release and use of CHIA Data to the minimum amount of data needed to accomplish a specific Project objective.

All-Payer Claims Database data is released in Limited Data Sets (LDS). All Organizations receive the "Core" LDS, but may also request the data enhancements listed below for inclusion in their analyses. Requests for enhancements will be reviewed by CHIA to determine whether each represents the minimum data necessary to complete the specific Project objective.

For a full list of elements in the release (i.e., the core elements and additional elements), please refer to release layouts, data dictionaries and similar documentation included on CHIA's website.

1. Specify below which enhancements you are requesting in addition to the "Core" LDS, provide your justification for requesting each enhancement.

a. Geographic Subdivisions

ZIP code and state geographic subdivisions are available for Massachusetts residents and providers only. Small population ZIP codes are combined with larger population ZIP codes. One ZIP Code per person (MEID) per year has been assigned based on the ZIP code/state reported in the member eligibility record's earliest submission year month. If the record does not have an MEID, assignment is based on distinct OrgID/Carrier Specific Unique Member ID.

Non-Massachusetts ZIP codes and state codes except for CT, MA, ME, NH, NY, RI, and VT are suppressed.

Select *one* of the following options.

☐ 3-Digit Zip Codes (standard)	☒ 5-Digit Zip Codes***
***If requested, provide justification for requesting 5-Digit Zip Code. Refer to specifics in your methodology:** We need accurate information on the location of both patients and providers to estimate the travel cost in our demand model (how the distance between a patient's address and a hospital will affect their probability of choosing that particular hospital). The distance between patients and hospitals has been shown in the literature (e.g., Gowrisankaran et al. 2015, Ho and Pakes 2014) to be an essential component in determining patients' choices of hospitals.	

b. Date Resolution

Select *one* option from the following options.

☒ Year (YYYY) (Standard)	☒ Month (YYYYMM) ***	☐ Day (YYYYMMDD) *** [for selected data elements only]
*** If requested, provide justification for requesting Month or Day. Refer to specifics in your methodology:** Our research methodology relies on observing patients' choices of hospitals during each period to study the determinants of hospital choice. Having information on the month (instead of a year) of treatment would allow us to model patients' choices more accurately and would provide important sources of variation to help me estimate my model. For instance, it would allow us to observe when a patient changes between receiving treatment in two different facilities during the same year.		

c. National Provider Identifier (NPI)

Select *one* of the following options.

☐ Encrypted National Provider Identifiers (standard)	☒ Decrypted National Provider Identifiers***
*** If requested, provide justification for requesting decrypted National Provider Identifier(s). Refer to specifics in your methodology:** We need the decrypted version of national provider identifiers in order to link hospitals visited by patients in the Medical Claims file with other hospital-level data sources, such as the American Hospital Association (AHA) annual survey and the Medicare Cost Reports in the Healthcare Cost Report Information System (HCRIS).	

VIII. MEDICAID (MASSHEALTH) DATA

1. Please indicate whether you are seeking Medicaid Data:

☐ Yes
☒ No

2. Federal law (42 USC 1396a(a)7) restricts the use of individually identifiable data of Medicaid recipients to uses that are ***directly connected to the administration of the Medicaid program***. If you are requesting MassHealth Data, please describe, in the space below, why your use of the Data meets this requirement. *Your description should focus on how the results of your project could be used by the Executive Office of Health and Human Services in connection with the administering the MassHealth program*. Requests for identifiable MassHealth Data will be forwarded to MassHealth for a determination as to whether the proposed use of the Data is directly connected to the administration of the MassHealth program. CHIA cannot release MassHealth Data without approval from MassHealth. This may introduce significant delays in the receipt of MassHealth Data.

Researchers must provide the following information for MassHealth to determire how the disclosure of indentifiable MassHeath claims data is directly related to the administration of the MassHealth program:

- How does the project relate directly to the administration of the Medicaid program?
- What specific Medicaid program, policy, rule or law will be affected or changed based on the outcome of this project?
- How will MassHealth's objectives be helped or impaired by approving this project?
- Will the results of the research have the potential for:
  - reducing cost of the Medicaid program,
  - improving access for recipients, and/or
  - increasing quality of care to recipients?
- Please describe the project deliverables the researchers will provide to MassHealth
- Please describe how MassHealth can use the project deliverables in administration of the MassHealth program.

3. Organizations approved to receive Medicaid Data will be required to execute a Medicaid Acknowlegment of Conditions. MassHealth may impose additional requirements on applicants for Medicaid Data as necessary to ensure compliance with federal laws and regulations regarding Medicaid.

IX. DATA LINKAGE

Data linkage involves combining CHIA Data with other data to create a more extensive database for analysis. Data linkage is typically used to link multiple events or characteristics within one database that refer to a single person within CHIA Data.

1. Do you intend to link or merge CHIA Data to other data?
   - ☒ Yes
   - ☐ No linkage or merger with any other data will occur

2. If yes, please indicate below the types of data to which CHIA Data will be linked. [Check all that apply]
   - ☐ Individual Patient Level Data (e.g. disease registries, death data)
   - ☐ Individual Provider Level Data (e.g., American Medical Association Physician Masterfile)
   - ☒ Individual Facility Level Data (e.g., American Hospital Association data)
   - ☐ Aggregate Data (e.g., Census data)
   - ☐ Other (please describe):

3. If yes, describe the dataset(s) to which the CHIA Data will be linked, indicate which CHIA Data elements will be linked and the purpose for each linkage.

We will link the hospitals visited by patients to several hospital and county-level datasets:

1. Medicare Cost Reports in the Hospital Cost Report Information System (HCRIS): Cost reports from HCRIS contain yearly financial information, such as total profits, total revenues (from Medicare and

non-Medicare patients), and total costs by cost center, as well as information on full-time employment units and salaries for different types of workers.
2. American Hospital Association's Annual Survey: The AHA Annual Survey is a hospital-level dataset that includes hospital characteristics such as the number of FTEs for different healthcare worker types, location, and the medical group the hospital is affiliated with.
3. Hospital Ownership Panel from Cooper, Craig, Gaynor, and Van Reenen (2019): We will complement the hospital system data in the AHA survey with the ownership panel published by Cooper et al. (2019). This information allows us to track any ownership changes to hospitals.
4. Hospital Merger and Acquisition Reports from Levin Associates: We will use the M&A reports from Levin Associates to verify and extend the ownership panel from Cooper et al. (2019)
5. HCAHPS (Hospital Consumer Assessment of Healthcare Providers and Systems) survey: We will use hospital-level publicly available information from the HCAHPS survey to study how patient-reported quality outcomes are affected by changes in a hospital's fraction of Medicare patients or by hospital mergers and acquisitions.
6. Hospital-Acquired Condition (HAC) Reduction Program: We will use hospital-level publicly available information from the Hospital-Acquired Condition (HAC) Reduction Program to study healthcare–associated infections are affected by changes in a hospital's fraction of Medicare patients or by hospital mergers and acquisitions.
7. CMS Hospital - Timely & Effective Care: We will use hospital-level publicly available information from the Hospital Timely & Effective Care measures to study how the quality of healthcare provided by a hospital is affected by changes in a hospital's fraction of Medicare patients or by hospital mergers and acquisitions.
8. CMS Hospital - Complications and Deaths: We will use hospital-level publicly available information from CMS Hospital - Complications and Deaths dataset to study how mortality and complication rates of a hospital are affected by changes in a hospital's fraction of Medicare patients or by hospital mergers and acquisitions.
9. US Bureau of Economic Analysis' County and MSA personal income summary files: We will use this dataset to obtain information on the income per capita from each county.
10. US Bureau of Labor Statistic Local Area Unemployment Statistics (LAUS): We will use this dataset to obtain information on the unemployment rate for each county.
11. Annual County Resident Population Estimates by Age, Race, and Hispanic Origin: April 1, 2010 to July 1, 2020 from the US Census Bureau: We will use this dataset to obtain information on the total population and number of people over the age of 65 in each county.
12. Bureau of Labor Statistics' Quarterly Census of Employment and Wages (QCEW): We will use this dataset to obtain county-level total employment in the health care industry.

4. If yes, for each proposed linkage above, please describe your method or selected algorithm (e.g., deterministic or probabilistic) for linking each dataset. If you intend to develop a unique algorithm, please describe how it will link each dataset.

We will link information on facilities visited by patients to the hospital-level datasets listed above deterministically using either the 10-digit National Provider Identifier or the Medicare Provider Number (CCN)

using the publicly-available NPI to Medicare CCN crosswalk (https://www.nber.org/research/data/national-provider-identifier-npi-medicare-ccn-crosswalk).
We will deterministically link information from hospitals to county-level datasets using the hospital location contained in the AHA survey.

5. If yes, attach or provide below a complete listing of the variables from all sources to be included in the final linked analytic file.

1. Medicare Cost Reports in the Hospital Cost Report Information System (HCRIS):
   a. Average wage for medical care workers
   b. Average wage for non-medical care workers
   c. Number of medical care workers (in Full-Time Equivalent units)
   d. Number of non-medical care workers (in Full-Time Equivalent units)
   e. Average non-Medicare inpatient revenue per discharge
   f. Average Medicare inpatient cost per discharge
   g. Average non-Medicare inpatient cost per discharge
   h. Total hospital beds
   i. Total inpatient days (Medicare/non-Medicare)
   j. Total inpatient discharges (Medicare/non-Medicare)
   k. Total income
   l. Total costs
   m. Outpatient total revenue
   n. Inpatient total revenue
   o. Primary payer amount
   p. Rural/urban location
   q. For-profit/non-profit status
   r. Percentage of Medicare Patients
   s. Percentage of Medicaid Patients
2. American Hospital Association's Annual Survey
   a. Number of nurse FTEs
   b. Number of registered nurse FTEs
   c. Number of LP nurse FTEs
   d. Number of nursing aides FTEs
   e. Medicare number (CCN)
   f. Health care system ID
3. Hospital Ownership Panel from Cooper, Craig, Gaynor, and Van Reenen (2019):

a. Hospital system ID

4. Hospital Merger and Acquisition Reports from Levin Associates

a. Target Hospital's name
b. Acquired Hospital's name
c. Date of merger event

5. HCAHPS (Hospital Consumer Assessment of Healthcare Providers and Systems) survey:

a. Rooms kept clean score
b. Doctor communication score
c. Staff helpful score
d. Overall patient score
e. Would recommend to score
f. Given recovery info score

6. Hospital-Acquired Condition (HAC) Reduction Program:

a. Patient Safety and Adverse Events Composite score
b. Catheter-associated urinary tract infection score
c. Methicillin-resistant Staphylococcus aureus (MRSA) bacteremia score
d. Central line-associated bloodstream infection (CLABSI) score
e. Clostridium difficile infection (CDI)
f. Total HAS Scores
g. Surgical site infections (SSI) from abdominal hysterectomy
h. Surgical site infections (SSI) from colon surgery

7. CMS Hospital - Timely & Effective Care:

a. Admit Decision Time to ED Departure Time for Admitted Patients
b. Emergency department volume
c. Hospital Harm - Severe Hypoglycemia
d. Hospital Harm - Severe Hyperglycemia
e. Average time patients spent in the emergency department before leaving from the visit
f. Left before being seen
g. Intensive Care Unit Venous Thromboembolism Prophylaxis
h. Appropriate care for severe sepsis and septic shock
i. Improvement in Patient's Visual Function within 90 Days Following Cataract Surgery
j. Percentage of healthcare personnel who are up to date with COVID-19 vaccinations

8. CMS Hospital - Complications and Deaths:

a. Rate of complications for hip/knee replacement patients
b. Serious complications
c. Deaths among patients with serious treatable complications after surgery

d. Death rate for COPD patients
e. Death rate for heart attack patients
f. Death rate for heart failure patients
g. Death rate for pneumonia patients
h. Death rate for stroke patients

9. US Bureau of Economic Analysis' County and MSA personal income summary files
   a. Average county income per capita
10. US Bureau of Labor Statistic Local Area Unemployment Statistics (LAUS):
   a. County unemployment rate
11. Annual County Resident Population Estimates by Age, Race, and Hispanic Origin
   a. Total population
   b. Total population over 65
12. Bureau of Labor Statistics' Quarterly Census of Employment and Wages (QCEW)
   a. Total county-level employment for ambulatory health services
   b. Total county-level employment for hospitals
   c. Total county-level employment for nursing and residential facilities

6. If yes, please identify the specific steps you will take to prevent the identification of individual patients in the linked dataset.

Since we will only be linking facility or county level data, there is no risk of identifying individual patients.

X. PUBLICATION / DISSEMINATION / RE-RELEASE

1. Do you anticipate that the results of your analysis will be published or made publically available? If so, how do you intend to disseminate the results of the study (e.g.; publication in professional journal, poster presentation, newsletter, web page, seminar, conference, statistical tabulation)? Any and all publication of CHIA Data must comply with CHIA's cell size suppression policy, as set forth in the Data Use Agreement. Please explain how you will ensure that any publications ***will not disclose a cell less than 11***, and percentages or other mathematical formulas that result in the display of a cell less than 11.

We will publish our results in two peer-reviewed academic papers. The only results we plan to present using the CHIA data will be aggregate results, such as coefficients and effects estimated from the model. For example, "a 1% increase in the share of Medicare patients leads to a decrease of x% in expenditures per patient." These results will be displayed for the entire population of individuals or subgroups substantially larger than 11 individuals.

We also plan to include descriptive statistics, such as the average age of our patient sample, in our publication. Any descriptive statistics we report will be based on the entire population or subgroups substantially larger than 11 individuals.

2. Describe your plans to use or otherwise disclose CHIA Data, or any Data derived or extracted from such Data, in any paper, report, website, statistical tabulation, seminar, or other setting that is not disseminated to the public.

We also intend to present the results of our work in academic seminars at universities or other research-related institutions. Any results we present at a seminar will be a subset of the ones included in the paper and will come from aggregate data from the entire population or subgroups significantly larger than 11 individuals.

3. What will be the lowest geographical level of analysis of data you expect to present for publication or presentation (e.g., state level, city/town level, zip code level, etc.)? Will maps be presented? If so, what methods will be used to ensure that individuals cannot be identified?

The lowest level of geographic analysis we will present in maps or other geographic analysis will be at the county level. Any geographic analysis or maps that we present will be based on aggregate data for the entire county.

4. Will you be using CHIA Data for consulting purposes?

☐ Yes
☒ No

5. Will you be selling standard report products using CHIA Data?

☐ Yes
☒ No

6. Will you be selling a software product using CHIA Data?

☐ Yes
☒ No

7. Will you be using CHIA Data as in input to develop a product (i.e., severity index took, risk adjustment tool, reference tool, etc.)

☐ Yes
☒ No

8. Will you be reselling CHIA Data in any format not noted above?

☐ Yes
☒ No

If yes, in what format will you be reselling CHIA Data?

Click here to enter text.

9. If you have answered "yes" to questions 5, 6, 7 or 8, please provide the name and a description of the products, software, services, or tools.

Click here to enter text.

10. If you have answered "yes" to questions 5, 6, 7 or 8, what is the fee you will charge for such products, software, services or tools?

Click here to enter text.

XI. APPLICANT QUALIFICATIONS

1. Describe your previous experience using claims data. This question should be answered by the primary investigator and any co-investigators who will be using the Data.

The PI for this project, Bradley Setzler, is the Strumpf Early Career Assistant Professor of Economics at Pennsylvania State University and Faculty Research Fellow in Labor Studies at the National Bureau of Economic Research. Professor Setzler's main fields of specialization include Labor Economics and Industrial Organization. The co-investigator, Eric San Miguel Flores, is a Ph.D. candidate in Economics at Penn State, working under the supervision of Prof. Setzler.
Although we have not used claims data for our previous research studies, we have significant experience working with hospital and healthcare-related data. For the first stages of this project, we extensively use several hospital-level data sources. Some of the data sources that we use are the hospital cost reports from CMS' Healthcare Cost Report Information System (HCRIS), the American Hospital Association's (AHA) Annual Survey and patient-reported outcomes from the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) Survey.

2. **Resumes/CVs**: When submitting your Application package on IRBNet, include résumés or curricula vitae of the principal investigator and co-investigators. (These attachments will not be posted on the internet.)

XII. USE OF AGENTS AND/OR CONTRACTORS

By signing this Application, the Organization assumes all responsibility for the use, security and maintenance of the CHIA Data by its agents, including but not limited to contractors. The Organization

must have a written agreement with the agent of contractor limiting the use of CHIA Data to the use approved under this Application as well as the privacy and security standards set forth in the Data Use Agreement. CHIA Data may not be shared with any third party without prior written consent from CHIA, or an amendment to this Application. CHIA may audit any entity with access to CHIA Data.

Provide the following information for **all** agents and contractors who will have access to the CHIA Data. [*Add agents or contractors as needed.]*

AGENT/CONTRACTOR #1 INFORMATION	
Company Name:	Click here to enter text.
Company Website	Click here to enter text.
Contact Person:	Click here to enter text.
Title:	Click here to enter text.
E-mail Address:	Click here to enter text.
Address, City/Town, State, Zip Code:	Click here to enter text.
Telephone Number:	Click here to enter text.
Term of Contract:	Click here to enter text.

1. Describe the tasks and products assigned to the agent or contractor for this Project and their qualifications for completing the tasks.

Click here to enter text.

2. Describe the Organization's oversight and monitoring of the activities and actions of the agent or contractor for this Project, including how the Organization will ensure the security of the CHIA Data to which the agent or contractor has access.

Click here to enter text.

3. Will the agent or contractor have access to and store the CHIA Data at a location other than the Organization's location, off-site server and/or database?

☐ Yes
☐ No

4. If yes, a separate Data Management Plan **must** be completed by the agent or contractor.

AGENT/CONTRACTOR #1 INFORMATION	
Company Name:	Click here to enter text.
Company Website	Click here to enter text.
Contact Person:	Click here to enter text.
Title:	Click here to enter text.
E-mail Address:	Click here to enter text.
Address, City/Town, State, Zip Code:	Click here to enter text.
Telephone Number:	Click here to enter text.
Term of Contract:	Click here to enter text.

1. Describe the tasks and products assigned to the agent or contractor for this Project and their qualifications for completing the tasks.

Click here to enter text.

2. Describe the Organization's oversight and monitoring of the activities and actions of the agent or contractor for this Project, including how the Organization will ensure the security of the CHIA Data to which the agent or contractor has access.

Click here to enter text.

3. Will the agent or contractor have access to or store the CHIA Data at a location other than the Organization's location, off-site server and/or database?

☐ Yes
☐ No

4. If yes, a separate Data Management Plan **must** be completed by the agent or contractor.

[INSERT A NEW SECTION FOR ADDITIONAL AGENTS/CONTRACTORS AS NEEDED]

XIII. ATTESTATION

By submitting this Application, the Organization attests that it is aware of its data use, privacy and security obligations imposed by state and federal law *and* confirms that it is compliant with such use, privacy and security standards. The Organization further agrees and understands that it is solely responsible for any breaches or unauthorized access, disclosure or use of CHIA Data, including, but not limited to, any breach or unauthorized access, disclosure or use by any third party to which it grants access.

Organizations approved to receive CHIA Data will be provided with Data following the payment of applicable fees and upon the execution of a Data Use Agreement requiring the Organization to adhere to processes and procedures designed to prevent unauthorized access, disclosure or use of data.

By my signature below, I attest: (1) to the accuracy of the information provided herein; (2) this research is not funded by a source requiring the release of raw data to that source; (3) that the requested Data is the minimum necessary to accomplish the purposes described herein; (4) that the Organization will meet the data privacy and security requirements described in this Application and supporting documents, and will ensure that any third party with access to the Data meets the data use, privacy and security requirements; and (5) to my authority to bind the Organization.

Signature: (Authorized Signatory for Organization)	
Printed Name:	**Alterra Milone**
Title:	Director of Research and Grants Management
Date:	02/06/2025

Attachments:
A completed Application must have the following documents attached to the Application or uploaded separately to IRBNet:
☒ 1. IRB approval letter and protocol (if applicable), or research methodology (if protocol is not attached)
☒ 2. Data Management Plan (including one for each agent or contractor that will have access to or store the CHIA Data at a location other than the Organization's location, off-site server and/or database);
☒ 3. CVs of Investigators (upload to IRBNet)

APPLICATIONS WILL NOT BE REVIEWED UNTIL THEY ARE COMPLETE, INCLUDING ALL ATTACHMENTS.