Commonwealth of Massachusetts
Center for Health Information & Analysis (CHIA)
Non-Government Agency Application for Data

This application is to be used by all applicants, except Government Agencies, as defined in 957 CMR 5.02.

NOTE: *In order for your application to be processed, you must submit the required application fee. Please consult the fee schedules for APCD and Case Mix data for the appropriate fee amount. A remittance form with instructions for submitting the application fee is available on the CHIA* website.

I. GENERAL INFORMATION

APPLICANT INFORMATION	
Applicant Name:	Robert Town/Elena Prager
Title:	Associate Professor/PhD Candidate
Organization:	University of Pennsylvania – Wharton School
Project Title:	The Effect of Limited and Tiered Provider Networks on Utilization, Quality, and Cost of Care
Date of Application:	June 26, 2014
Project Objectives (240 character limit)	This project studies how limited- and tiered-network plans affect the aggregate quality and cost of care. The outcome measures are provider quality responses; the consequent reallocation of patients; and cost of care for consumers and payers.
Project Research Questions (if applicable)	Main research question: What is the aggregate effect of limited and tiered provider networks on the quality and cost of health care? To answer this question, several individual components must be examined: 1. How do providers respond to network exclusion or unfavorable tier assignments? Do limited- and tiered-network plans encourage under-performing providers to raise quality and/or reduce fees? 2. How do patients respond to the quality information and financial incentives in a tiered-network plan when choosing providers? Does a tiered structure help to steer patients towards higher-quality or lower-cost providers? 3. Are provider network inclusion and tier assignments consistent or highly variable across insurance carriers? Do providers pursue favorable tier assignments with all insurers simultaneously, or focus on the most

	important players in their market?
	4. How do patients value access to providers at full coverage (in-network in a traditional plan), vs. partial coverage (in a low tier of a tiered plan), vs. no coverage (out-of-network in a limited-network plan)?
	5. How do tiered networks affect access to health care? Are low-income populations disproportionately affected by higher cost-sharing for the highest-quality providers?

I. PROJECT SUMMARY

Briefly describe the purpose of your project and how you will use the requested CHIA data to accomplish your purpose.

This project investigates the effect of limited and tiered provider networks in health insurance on the health care system. The outcomes of interest are health care quality adjustments by providers, the shifting of patients to higher-quality or lower-cost providers, cost of care for consumers, and overall health care costs. These outcomes require the establishment of links between plan networks, utilization, quality of care, and prices paid to providers.

The CHIA data captures utilization patterns and across providers and payers. This project will estimate patient valuation for provider inclusion in insurance plan networks using utilization data and demand characteristics, such as provider specialty and distance from the patient's home. Patient valuation will be associated with plan premiums and network construction by linking to insurer-level data on enrollment, premiums, and plan structure. The CHIA data is especially well suited for this study because of the high market share of tiered-network plans in Massachusetts, compared to other states. The analysis will use regression methods, simulation, and economic modeling. A detailed description of the methods and unique suitability of the CHIA data is included in the supplement to section XI.2. All computations will be done in standard statistical and computational software such as Stata, Matlab, and R.

II. FILES REQUESTED

Please indicate the databases from which you seek data, the Level(s) and Year(s) of data sought.

ALL PAYER CLAIMS DATABASE	Level 1[1] or 2[2]	Single or Multiple Use	Year(s) Of Data Requested Current Yrs. Available 2009 - 2012			
☑ Medical Claims	☐ Level 1[3] ☑ Level 2	Single ▾	☑ 2009	☑ 2010	☑ 2011	☑ 2012
☑ Pharmacy Claims	☑ Level 2	Single ▾	☑ 2009	☑ 2010	☑ 2011	☑ 2012
☐ Dental Claims	☐ Level 2	Select... ▾	☑ 2009	☑ 2010	☑ 2011	☑ 2012

[1] Level 1 Data: De-identified data containing information that does not identify an individual patient and with respect to which there is no reasonable basis to believe the data can be used to identify an individual patient. This data is de-identified using standards and methods required by HIPAA.

[2] Level 2 (and above) Data: Includes those data elements that pose a risk of re-identification of an individual patient.

[3] Please note that Level 1 APCD data is not available as of 4/30/2014. This is scheduled to be available later in 2014.

☑ Member Eligibility	☑ Level 2	Single ▼	
☑ Provider	☑ Level 2	Single ▼	
☑ Product	☑ Level 2	Single ▼	

CASEMIX	Level 1 - 6	Fiscal Years Requested
Inpatient Discharge	☐ Level 1 – No Identifiable Data Elements ☐ Level 2 – Unique Physician Number (UPN) ☐ Level 3 – Unique Health Information Number (UHIN) ☐ Level 4 – UHIN and UPN ☐ Level 5 – Date(s) of Admission; Discharge; Significant Procedures ☐ Level 6 – Date of Birth; Medical Record Number; Billing Number	<u>1998-2013 Available</u> (limited data 1989-1997)
Outpatient Observation	☐ Level 1 – No Identifiable Data Elements ☐ Level 2 – Unique Physician Number (UPN) ☐ Level 3 – Unique Health Information Number (UHIN) ☐ Level 4 – UHIN and UPN ☐ Level 5 – Date(s) of Admission; Discharge; Significant Procedures ☐ Level 6 – Date of Birth; Medical Record Number; Billing Number	<u>2002-2012 Available</u> <u>(2013 available 8/1/14)</u>
Emergency Department	☐ Level 1 – No Identifiable Data Elements ☐ Level 2 – Unique Physician Number (UPN) ☐ Level 3 – Unique Health Information Number (UHIN) ☐ Level 4 – UHIN and UPN; Stated Reason for Visit ☐ Level 5 – Date(s) of Admission; Discharge; Significant Procedures ☐ Level 6 – Date of Birth; Medical Record Number; Billing Number	<u>2000-2012 Available</u> <u>(2013 available 9/1/14)</u>

III. FEE INFORMATION
Please consult the fee schedules for APCD (Administrative Bulletin 13-11) and Case Mix data (Administrative Bulletin 13-09) and select from the following options:

APCD Applicants Only
☒ Academic Researcher
☐ Others (Single Use)
☐ Others (Multiple Use)

Case Mix Applicants Only
☐ Single Use
☐ Limited Multiple Use
☐ Multiple Use

Are you requesting a fee waiver?
☒ Yes
☐ No

If yes, please submit a letter stating the basis for your request. Please refer to the fee schedule for qualifications for receiving a fee waiver. If you are requesting a waiver based on the financial hardship provision, please provide documentation of your financial situation. Please note that non-profit status alone isn't sufficient to qualify for a fee waiver.

IV. REQUESTED DATA ELEMENTS [APCD Only]
State and federal privacy laws limit the use of individually identifiable data to the minimum amount of data needed to accomplish a specific project objective. Please use the APCD Data Specification Workbook to identify which data elements you would like to request and attach this document to your application.

Please see attached spreadsheet for the completed APCD Data Specification Workbook for this application.

V. MEDICAID DATA [APCD Only]
Please indicate here whether you are seeking Medicaid Data:
☐ Yes
☒ No

Federal law (42 USC 1396a(a)7) restricts the use of individually identifiable data of Medicaid recipients to uses that are directly connected with the administration of the Medicaid program. If you are requesting Medicaid data from Level 2 or above, please describe in detail why your use of the data meets this requirement. Applications requesting Medicaid 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 Medicaid program. MassHealth may impose additional requirements on applicants for Medicaid data as necessary to ensure compliance with federal laws and regulations regarding Medicaid.

N/A

VI. REQUESTS PURSUANT TO 957 CMR 5.04

If you are a payer, provider, provider organization or researcher seeking access to Level 1 (de-identified) data, please describe how you will use such data for the purposes of lowering total medical expenses, coordinating care, benchmarking, quality analysis or other administrative research purposes. Please provide this information below.

> N/A. Applying for Level 2 data.

VII. FILTERS

If you are requesting APCD elements from Level 2 or above, describe any filters you are requesting to use in order to limit your request to the minimum set of records necessary to complete your project. (For example, you may only need individuals whose age is less than 21, claims for hospital services only, or only claims from small group projects.)

APCD FILE	DATA ELEMENT(S) FOR WHICH FILTERS ARE REQUESTED	RANGE OF VALUES REQUESTED
Medical Claims		
Pharmacy Claims		
Dental Claims		
Membership Eligibility		
Provider		
Product		

VIII. PURPOSE AND INTENDED USE

1. Please explain why completing your project is in the public interest.

> This project will identify whether limited and tiered network designs are successful in improving health care quality and lowering costs; and, if not, will suggest changes that will make such networks more successful. The project will evaluate effects of interest to policy-makers, such as whether limited and tiered networks improve aggregate quality of care by incentivizing providers or steering patients appropriately, and whether recent legislation prohibiting provider groups from demanding to be in the same tier is effective in improving health care system efficiency.
>
> The existing literature has focused on how individual carriers' network-setting practices affect quality and cost of care. However, when a provider responds to an insurer's network by changing its service offerings, quality, or prices, patients are shifted to it (if it is higher-quality) or to competitor providers (if they accept lower prices from insurers). In turn, the shifting of patients triggers quality and price responses by other insurers and providers in the market. Thus, current understanding of individual providers' responses to limited- and tiered-network plans is not sufficient for drawing conclusions about the overall effects on the health care market. The comprehensive nature of the CHIA data makes it an excellent setting for studying the market-wide effects of limited and narrow networks on quality and cost of care. Moreover, limited- and tiered-network plans have a particularly large market share in the state of Massachusetts, making the CHIA data uniquely well suited for this project.
>
> The results of the project will inform policy-makers and insurers regarding how to deliver better care to patients using network design. This is especially important under the Affordable Care Act, which has

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encouraged the use of limited- and tiered-network plans.

2. **Attach** a brief (1-2 pages) description of your research methodology. (This description will not be posted on the internet.)
   Please see attached methods addendum for information on study contribution to the literature and research methods.

3. Has your project received approval from your organization's Institutional Review Board (IRB)? Please note that CHIA will not review your application until IRB documentation has been received (if applicable).

   ☑ Yes, and a copy of the approval letter is attached to this application.

   ☐ No, the IRB will review the project on _____.

   ☐ No, this project is not subject to IRB review.

   ☐ No, my organization does not have an IRB.

IX. APPLICANT QUALIFICATIONS

1. Describe your qualifications to perform the research described or accomplish the intended use of CHIA data.

   > Elena Prager is a PhD candidate in health economics at the University of Pennsylvania and a Fellow at the Leonard Davis Institute of Health Economics. She holds an MS in health care management and economics from the University of Pennsylvania and an iBBA in economics from York University. She has worked with sensitive health data previously (California's OSHPD Patient Discharge Data state hospital discharge dataset; Medstat MarketScan medical and pharmacy claims dataset; and Medicare outpatient claims). The project will be supervised by Robert Town, Associate Professor of Health Care Management at the University of Pennsylvania. Dr. Town has worked with sensitive health data and private carrier-level data. He is an expert on provider competition and antitrust in healthcare.

2. Attach résumés or curricula vitae of the applicant/principal investigator, key contributors, and of all individuals who will have access to the data. (These attachments will not be posted on the internet.)

X. DATA LINKAGE AND FURTHER DATA ABSTRACTION

1. Does your project require linking the CHIA Data to another dataset?
   ☒ Yes
   ☐ No

2. If yes, will the CHIA Data be linked to other patient level data or with aggregate data (e.g. Census data)?
   ☐ Patient Level Data
   ☒ Aggregate Data

3. If yes, please identify all linkages proposed and explain the reasons(s) that the linkage is necessary to accomplish the purpose of the project. Please be specific in describing vwhich data elements will be linked to outside datasets and how this will be accomplished.
   > To complete this project, providers in the APCD will be linked to aggregate data on provider characteristics. This includes the American Hospital Association Annual Survey Database, the SK&A

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physician database, CHIA data on hospital relative prices and quality, Medicare's Hospital Compare and other hospital data, and quality and cost metrics for providers compiled by Massachusetts insurers. These linkages are necessary in order to identify the effects of tiered and limited networks on the aggregate quality and cost of care. To make these linkages successfully, provider-level identifiers such as facility name and address are needed.

Products will also be linked to public data on plan names and networks types. Identifying the provider network type is integral to the project, which compares quality and cost of care in tiered-network plans to more traditional plans (narrow and standard provider networks). *Please see the follow-up document on categorization of PR002 on IRBNet.*

In addition, patient data will be linked to geographic characteristics (at the zip, MSA, or county level, as available) in US Census data in order to account for confounding factors in health care utilization and insurance status. To make these linkages successfully, patient geographic information is needed that is as detailed as possible while still maintaining patient confidentiality.

The following is a list of APCD data elements that will be used for external linkages:

Medical Claims File:

Data element source	Data element name	External linkage
Derived-MC9	CHIA Incurred Date	Used to link to correct year of the plan's provider network (carriers may change their networks each calendar year).
MC026	National Service Provider ID	Used to link to provider characteristics from the American Hospital Association Annual Survey Database, the SK&A physician database, CHIA data on hospital finances and quality, Medicare's Hospital Compare and other hospital data, and quality and cost metrics for providers compiled by Massachusetts insurers. Used in conjunction with MC028-MC031 and other provider identifiers (in the Medical Claims and in other APCD files) where quality can be improved by additional variables.
MC028-MC031	Various provider names	Used to link to provider characteristics (see MC026 explanation).
MC035	Service Provider ZIP Code	Used to link to provider characteristics (see MC026 explanation).
MC076-MC078	Various provider identifiers	Used to link to provider characteristics (see MC026 explanation).
MC112	Referring Provider ID	Used to link to provider characteristics (see MC026 explanation).
MC125	Attending Provider	Used to link to provider characteristics (see MC026 explanation).

Member Eligibility File:

Data element source	Data element name	External linkage
ME004	Year	Used to link to correct year of the plan's provider network (carriers may change their networks each calendar year).

ME013	Member Gender	May be used in conjunction with MC015 and MC017 to link to external demographic data in order to account for confounding factors in health care utilization and insurance status, such as income.
ME014	Member Birth (Month Only), Member Birth (Year Only)	May be used in conjunction with MC015 and MC017 to link to external demographic data in order to account for confounding factors in health care utilization and insurance status, such as income.
MC015	Member City Name	Used to link to external demographic data (primarily US Census data) in order to account for confounding factors in health care utilization and insurance status, such as income. May be linked at the zip code, county, or MSA level, as available. May be combined with patient demographics (gender, age, race) to perform more accurate linkages for a given patient.
MC017	Member ZIP Code	Used to link to external aggregate-level demographic data (primarily US Census data) in order to account for confounding factors in health care utilization and insurance status, such as income and race. May be linked at the zip code, county, or MSA level; more granular levels of linking will not be undertaken (and the data would not allow it).
ME021-ME027	Various race and ethnicity indicators	May be used in conjunction with MC015 and MC017 to link to external demographic data in order to account for confounding factors in health care utilization and insurance status, such as income.

Pharmacy Claims File:

Data element source	Data element name	External linkage
Derived-PC10	CHIA Incurred Date	Used to link to correct year of the plan's provider network (carriers may change their networks each calendar year).
PC043-PC048	Various prescribing physician identifiers	Used to link to provider characteristics (see MC026 explanation).

Product File:

Data element source	Data element name	External linkage
PR005	Insurance Plan Market	Used to identify type of plan (group, exchange, etc.) to link to specific plan network. See PR002 for further explanation.
PR006	Product Benefit Type	Used to identify plans that include medical coverage.
PR009	Product Start Date	Used to link to correct year of the plan's provider network (carriers may change their networks each calendar year).
PR010	Product End Date	Used to link to correct year of the plan's provider network (carriers may change their networks each calendar year).
PR002	Product Name	A *categorized* version of this variable is being requested in order to identify which members are enrolled in plans with narrow provider networks, tiered networks, or standard

		broad networks. The cross-walk from the original PR002 value to the categorized version will be constructed from public data about plan names. For example, a PR002 value of "HMO Blue New England Options Deductible, Town of Milford" would be identified as belonging to BCBS's Blue Options family of tiered-network plans and coded as "tiered". *Please see the follow-up document on categorization of PR002 on IRBNet.*

Provider File:

Data element source	Data element name	External linkage
PV007-PV013	Various provider identifiers	Used to link to provider characteristics (see MC026 explanation).
PV017-PV018	Various provider addresses	Used to link to provider characteristics (see MC026 explanation).
PV029	Provider Type Code	Used to link to provider characteristics (see MC026 explanation).
PV030	Primary Specialty Code (Standard/Carrier-Specific Custom Values)	Used to link to provider characteristics (see MC026 explanation).
PV034	ProviderIDCode	Used to link to provider characteristics (see MC026 explanation).
PV036	Medicare Id	Used to link to provider characteristics (see MC026 explanation).
PV039	National Provider ID	Used to link to provider characteristics (see MC026 explanation).
PV040	National Provider2 ID	Used to link to provider characteristics (see MC026 explanation).

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

Linking to the provider and insurer datasets does not increase the ease or likelihood of the identification of individual patients, since all the linked information is at the provider aggregate level. Linking patient information to geographic information will be done only at a level of detail sufficient to maintain patient confidentiality, and any small cells will be further aggregated as needed. Consequently, there is no increased risk to patient confidentiality or HIPAA compliance.

XI. PUBLICATION / DISSEMINATION / RE-RELEASE
1. Describe your plans to publish or otherwise disclose CHIA Data, or any data derived or extracted from such data, in any paper, report, website, statistical tabulation, seminar, conference, or other setting.

The results of the study will be submitted for publication in academic, peer-reviewed journals; they will also be presented at academic conferences and workshops. No identification of patients will be possible,

and cells with fewer than 10 observations will not be disclosed. Only aggregate relationships and summary statistics will be reported from the data.

2. Will the results of your analysis be publicly available to any interested party? Please describe how an interested party will obtain your analysis and, if applicable, the amount of the fee.

The results of the study will be available at no cost on the investigator's website or upon request.

3. Will you use the data for consulting purposes?
☐ Yes
☒ No

4. Will you be selling standard report products using the data?
☐ Yes
☒ No

5. Will you be selling a software product using the data?
☐ Yes
☒ No

6. If you have answered "yes" to questions 3, 4 or 5, please describe the types of products, services or studies.

N/A

XII. USE OF AGENTS AND/OR CONTRACTORS

Third-Party Vendors. Provide the following information for all agents and contractors who will work with the CHIA Data.

Company Name:	
Contact Person:	
Title:	
Address:	
Telephone Number:	
E-mail Address:	
Organization Website:	

7. Will the agent/contractor have access to the data at a location other than your location or in an off-site server and/or database?

☐ Yes
☐ No

8. Describe the tasks and products assigned to this agent or contractor for this project.

9. Describe the qualifications of this agent or contractor to perform such tasks or deliver such products.

10. Describe your oversight and monitoring of the activity and actions of this agent or subcontractor.