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

This form 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 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:	Dr. Gary Young
Title:	Director, Center for Health Policy and Healthcare Research Professor, Strategic Management and Healthcare Systems Faculty Scholar, Institute of Urban Health Research and Practice
Organization:	Institute of Urban Health Research and Practice Northeastern University
Project Title:	***Impact of alternative payment models on utilization of diagnostic imaging services in the APCD dataset***
Mailing Address:	310 INV 360 Huntington Avenue Boston MA 02115
Telephone Number:	(617) 373-2528
Email Address:	ga.young@neu.edu
Names of Co-Investigators:	Stephen Flaherty, MBA and PhD Student
Email Addresses of Co-Investigators:	flaherty.st@husky.neu.edu
Original Data Request Submission Date:	3/27/15
Dates Data Request Revised:	6/26/15
Project Objectives (240 character limit)	To identify and explore recent trends in the utilization of imaging services from 2009 to 2013 in the APCD. We will perform analyses at multiple levels to compare imaging utilization across geographic regions, demographic groups, diagnosis related groups, types of insurance coverage and payment plans. We will examine the effects of the size, location and ownership of health care organizations on imaging utilization at the patient level.
Project Research Questions (if applicable)	1. Are there different patterns in diagnostic imaging utilization between insurance plans with different payment models and utilization controls? 2. Do different patterns in diagnostic imaging utilization exist across patients based on the payment models that are applicable to their care (e.g., global payment, capitation, fee-for-service, DRG and pay for performance)? 3. Do different patterns in diagnostic imaging utilization exist based on the location of the imaging equipment (e.g., free-standing or office-

	based imaging facilities vs hospital-based imaging)?

II. PROJECT SUMMARY

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

We propose to more thoroughly examine the effects of different payment models across insurance plans in Massachusetts on diagnostic imaging utilization. We will also examine whether the locus of imaging services influences imaging utilization patterns in Massachusetts across insurance plans included in the APCD data.

We will use APCD data from the years 2009-2013 to examine imaging utilization in Massachusetts. We will identify imaging procedures through CPT codes and use additional variable information on patient demographics, providers, provider location and specialty, and the location of imaging services to investigate patterns of utilization. We will also compare imaging services utilization across different payment models through variables associated with insurance plan type and payment method (e.g., referral indicators, global payment or in-network flags, and other payment information). Statistical analyses, including multi-level regression techniques, will be used to examine the data and build models to address our research questions stated above.

III. FILES REQUESTED

Please indicate the databases from which you seek data, and the year(s) of data requested.

ALL PAYER CLAIMS DATABASE	Single or Multiple Use	Year(s) Of Data Requested Current Yrs. Available 2009 – 2013
☒Medical Claims	☒Single Use ☐Multiple Use	☒2009 ☒2010 ☒2011 ☒2012 ☒2013
☐Pharmacy Claims	☐Single Use ☐Multiple Use	☐2009 ☐2010 ☐2011 ☐2012 ☐2013
☐Dental Claims	☐Single Use ☐Multiple Use	☐2009 ☐2010 ☐2011 ☐2012 ☐2013
☒Member Eligibility	☒Single Use ☐Multiple Use	☒2009 ☒2010 ☒2011 ☒2012 ☒2013
☒Provider	☒Single Use ☐Multiple Use	☒2009 ☒2010 ☒2011 ☒2012 ☒2013
☐Product	☐Single Use ☐Multiple Use	☐2009 ☐2010 ☐2011 ☐2012 ☐2013

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.

V. FEE INFORMATION

Please consult the fee schedules for APCD data) and Case Mix data, available at http://chiamass.gov/regulations/#957_5, and select from the following options:

APCD Applicants Only

☒ Academic Researcher
☐ Others (Single Use)
☐ Others (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.

VI. 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.

The Medicaid population is different from other populations with respect to their health status, service utilization and health outcomes, hence it is important to study this group to identify opportunities for improving their access to healthcare and understanding their specific needs.

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		

IX. PURPOSE AND INTENDED USE

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

Healthcare spending in the US has increased every year since 1960 at rates that have often outstripped inflation and GDP growth (Centers for Medicare and Medicaid Services). Total healthcare expenditures reached nearly $2.8 trillion in 2012 (CMS). CMS projects health spending to grow at an average rate of 5.7% from 2013 to 2023 (Cuckler et al., 2013).

Diagnostic imaging accounts for approximately 8% of US health care spending (Horný, Burgess, Horwitt, & Cohen, 2014) . Levin reports growth of 4% annually in noninvasive imaging usage among Medicare enrollees from 1998 to 2005, with a reduction to 1.5% annual growth from 2005 to 2008 (Levin, Rao, Parker, Frangos, & Sunshine, 2011). Smith-Bindman found a 7.8% annual increase in imaging utilization from 1996 to 2010 at a group of large integrated health systems across the US, with MRI exhibiting 10% annual growth and PET scanning increasing at a 57% annual rate after 2004 despite an overall reduction in nuclear medicine utilization (Smith-Bindman et al., 2012). Studies have also shown that physicians order more imaging of questionable value when they have a vested interest in the imaging facility (Paxton et al., 2012)(Lungren et al., 2013) and there has been extensive research over that past three decades into patterns of imaging by physicians with in-office equipment (see Hillman et al., 1990 or Levin & Rao, 2011 for example). Utilization of imaging services also varies considerably by region across the US, as seen in recent studies (Burke, Kerber, Iwashyna, & Morgenstern, 2012) (Parker, Levin, Frangos, & Rao, 2010).

Federal policy initiatives have been advanced to control the increase in imaging utilization. In particular, the Deficit Reduction Act (DRA) of 2005 included changes to the way outpatient facilities are paid for imaging services with technical payment reductions of 35% for MRI, 25% for MRI angiography, 9% for CT, 37% for CT angiography and 16% for nuclear medicine (NM). This legislation had a noticeable impact on imaging expenditures and utilization. The Government Accountability Office (2008) noted a reduction in Medicare Part B spending on imaging services of 12.7% in 2007 with the implementation of the DRA provisions for fee reductions. The GAO also reported utilization growth in imaging services of 5.9% from 2000 to 2006, with a drop to 3.2% growth in 2007. But there are signs that this trend is reversing. In a study of private insurance claims data, Horný et al. (2014) found an increase in both utilization and spending on advanced imaging services in 2010 and 2011. The Affordable Care Act of 2010 had additional provisions to curb imaging spending and self-referrals but the impact of such provisions have yet to be evaluated.

At a local level, there is also much interest in how recent changes in payment structure, most notably the return of capitation including global payment, will influence the utilization of health services generally and diagnostic imaging specifically. One recent study has shown a reduction in imaging spending and utilization in 2009-2010 with the introduction of a global payment scheme –a component of the Alternative Quality Contract (AQC) -by Blue Cross Blue Shield of Massachusetts (Song, Fendrick, Safran, Landon, & Chernew, 2013).

We propose to use the APCD data from the years 2009-2013 to examine imaging utilization in Massachusetts. We will identify imaging procedures through CPT codes and use additional variable information on patient demographics, providers, provider location and specialty, and the location of imaging services to investigate patterns of utilization. We will also compare imaging services utilization across different payment models through variables associated with insurance plan type and payment method (e.g., referral indicators, global payment or in-network flags, and other payment information). Statistical analyses, including multi-level regression techniques, will be used to examine the data and build models to address our research questions stated above.

2. **Attach** a brief (1-2 pages) description of your research methodology. (This description will not be posted on the internet.)

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 approximately April 15, 2015. _____.
   ☐ No, this project is not subject to IRB review.
   ☐ No, my organization does not have an IRB.

X. APPLICANT QUALIFICATIONS

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

Gary Young, JD, PhD is Director of the Northeastern University Center for Health Policy and Healthcare Research as well as Professor of Strategic Management and Healthcare Systems, Northeastern University. He is also affiliated with the Health Services Research and Development Service of the Department of Veterans Affairs. Before joining Northeastern University, he was chairman of the Department of Health Policy and Management at Boston University. Dr. Young's research generally pertains to organizational, managerial, and policy issues associated with the delivery of healthcare services. He has extensive research experience regarding performance measurement and improvement for quality of care. His published work has appeared in such journals as the New England Journal of Medicine, Journal of the American Medical Association, Health Affairs, Medical Care, Journal of Health Politics, Policy and Law, and Academy of Management Journal. He is a recipient of an Investigator Award in Health Policy Research from The Robert Wood Johnson Foundation for his work on the application of pay-for-performance to the US health care industry. In 2012, he was appointed by the US Secretary of the Treasury to the Internal Revenue Service's Advisory Committee on Tax Exempt and Government Entities, one of several congressionally mandated committees that advise the IRS on policy issues including the agency's current responsibilities for implementing provisions of the Patient Protection and Affordable Care Act. He also currently serves on a committee for the National Quality Forum that is responsible for recommending concepts and methods for the development of value-based performance measures. He received a law degree and Ph.D. in Management from the State University of New York.

Stephen Flaherty is a PhD Student in the Population Health Program at Northeastern Univeristy. He holds a BS in Computer Science from the Univeristy of Colorado-Denver and an MBA from the University of Redlands (California). He has many years of experience in diagnostic imaging, spread across clinical, managerial and research roles. He has implemented and maintained dataservers and databases in commercial and research settings. He also has experience with multi-level modeling, regression analysis and other advanced statistical techniques. His research interests include healthcare utiliazation and efficiency.

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.)

XI. DATA LINKAGE AND FURTHER DATA ABSTRACTION

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

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

2. If yes, will the CHIA Data be linked or merged to other individual patient level data (e.g. disease registries, death data), individual provider level data (e.g., American Medical Association Physician Masterfile) , facility level (e.g., American Hospital Association data) or with aggregate data (e.g., Census data)? [check all that apply]

☐ Individual Patient Level Data

What is the purpose of the linkage:

What databases are involved, who owns the data and which specific data elements will be used for linkage:

☒ Individual Provider Level Data

What is the purpose of the linkage:

Identify provider affliations

What databases are involved, who owns the data and which specific data elements will be used for linkage:

We will use the NPI to link with the National Plan and Provider Enumeration System (NPPES) Downloadable File from CMS. This is a public use file.

☐ Individual Facility Level Data

What is the purpose of the linkage:

What databases are involved, who owns the data and which specific data elements will be used for linkage:

☒ Aggregate Data

What is the purpose of the linkage:

To link zip code with Massachusetts 2010 census data in order to use zip code as a proxy for income.

What databases are involved, who owns the data and which specific data elements will be used for linkage:

We will use public data for Massachusetts from the 2010 census

3. 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 .

Median Income for zip codes/regions from the Census data will be used to stratify claims to help identify any possible association between socioeconomic status and imaging utilizaition. We will attempt to use the NPPES file to identify provider affiliations.

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

We are looking at income/SES at the aggregate level and will not focus on individual claims or patients. Zip codes will be grouped by income levels (e.g quartiles or quintiles) and claims will be assigned to these income categories based on zip code provided. Provider

5. If yes, and the data mentioned above is not in the public domain, please attach a letter of agreement or other appropriate documentation on restrictions of use from the data owner corroborating that they agree to have you initiate linkage of their data with CHIA data and include the data owner's website.

XII. 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.

This project will be conducted as part of Stephen Flaherty's dissertation and we plan to publish several papers related to this project in health services research and healthcare economics journals.

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.

Publications will be available through the journals. We do not plan to charge any fee for reports or analysis done using the CHIA data.

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. Will you be reselling the data?

☐ Yes
☒ No

If yes, in what format will you be reselling the data (e.g., as a standalone product, incorporated with a software product, with a subscription, etc.)?

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

XIII. 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:	

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

   ☐ Yes
   ☒ No

   If yes, please provide information about the agent/contractor's data management practices, policies and procedures in your Data Management Plan.

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

N/A

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

N/A

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

N/A

XIV. ASSURANCES

Applicants requesting and receiving data from CHIA pursuant to 957 CMR 5.00 ("Data Recipients") will be provided with data following the execution of a data use agreement that requires the Data Recipient to adhere to processes and procedures aimed at preventing unauthorized access, disclosure or use of data, as detailed in the DUA and the applicant's CHIA-approved Data Management Plan.

Data Recipients are further subject to the requirements and restrictions contained in applicable state and federal laws protecting privacy and data security, and will be required to adopt and implement policies and procedures designed to protect CHIA data in a manner consistent with the federal Health Insurance Portability and Accountability Act of 1996 (HIPAA).

By my signature below, I attest to: (1) the accuracy of the information provided herein; (2) my organization's ability to meet CHIA's minimum data security requirements; and (3) my authority to bind the organization seeking CHIA data for the purposes described herein.

Signature:	
Printed Name:	Gary Young
Title	Director, Northeastern University Center for Health Policy and Healthcare Research
Original Data Request Submission Date:	

Dates Data Request Revised:	