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

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

I. GENERAL INFORMATION

APPLICANT INFORMATION	
Applicant Name:	Jon Chilingerian, PhD
Title:	Associate Professor of Human Services Management; Director of the Ph.D. Program in Health Services Research; Director of the Tufts School of Medicine-Brandeis University MD-MBA Program
Organization:	The Heller School for Social Policy and Management, Brandeis University
Project Title:	Being Better Than Average: Benchmarking Efficiency-Quality to Achieve Clinical Excellence in Massachusetts Hospitals
Date of Application:	
Project Objectives (240 character limit)	The primary objectives of this research project are to benchmark efficiency and performance among Massachusetts hospitals over time and uncover the many sources and factors that contribute to greater efficiencies in patient care and resource use among Massachusetts hospitals
Project Research Questions	1. Who are the top performing hospitals in Massachusetts in terms of efficiency and quality for high cost admissions and procedures? 2. What factors contribute to more or less variability in hospital performance? 3. What was the impact of the 2006 Massachusetts health reform on hospital efficiency? 4. What hospital and market level factors impact the efficiency of patient care?

Please indicate if you are a Researcher, Payer, Provider or Provider Organization and you are seeking data pursuant to 957 CMR 5.04 (De-Identified Data) or 957 CMR 5.05 (Direct Patient Identifiers for Treatment or Coordination of Care).

◉ Researcher ○ Payer	○ 957 CMR 5.04 (De-identified Data) ○ 957 CMR 5.05 (Direct Patient Identifiers)

Provider / Provider Organization	

All other requests are subject to 957 CMR 5.06.

II. PROJECT SUMMARY

Briefly describe the purpose of your project and how you will use the CHIA data?

The proposed research project will benchmark the performance of hospitals in Massachusetts along the dimensions of efficiency and quality for high cost inpatient procedures and admissions, and identify the important environmental and organizational factors that contribute to higher and lower performance. In addition, the study will further measure performance over time, specifically examining the impact the 2006 Massachusetts health reform law on hospital efficiency and quality. The overarching purpose of this research is to enable health care decision-makers to evaluate their performance over a five-year period and uncover practices that yield high levels of efficiency and qualiy while using the least amount of clinical inputs.

Using the Case-Mix Inpatient data the researchers will: 1) Calculate hospital performance scores and benchmarks using Data Envelopment Analysis (DEA) within each of the top 50 most costly Diagnosis-Related Groups (DRGs) over a five-year period; 2) Examine how hospital efficiency has changed over time in response to the implementation of the 2006 Massachusetts Health Reform; and 3) Use common statistical methods to identify organizational and market-level factors that are associated with high and low performance; 4) Conduct analyses to explore the potential factors that effect efficiency of patient care and resource use within specific hospital service lines (e.g., cardiac surgeries, renal dialysis, behavioral health, etc.).

In addition to these research objectives, the data will also be used for educational and instructional purposes pursuant to the mission of the Heller School and Brandeis University. This will include teaching Ph.D. students, MD-MBA students, as well as physician leaders and health executives about the importance of measuring and evaluating performance with frontier methodology. Training Massachusetts Health Leaders and future health services researchers on DEA as a methodology, deepens their knowledge of how to measure and evaluate the important work of health providers. By educating physician and health leaders on how to improve quality and efficiency by applying this methodology not only gives clinical leaders a distinct advantage, it provides them with tools and concepts that can help to serve the public interest. If leaders can improve the performance of their departments and hospitals, the research will help to fulfill the Heller School's mission of "knowledge advancing social justice.

The data will be used by the researchers in lectures and seminars to demonstrate the existence of variations in the practice of health care, and to generate new knowledge about better ways to estimate the amount and sources of high cost and unsatisfactory quality, by learning form the outliers. Most studies of health costs, quality and efficiency are based on State-wide averages, since ratios and statistical models are used. When we want to improve performance, we should focus less on average performance and focus more on who are the high performers, what explains best practices, and can other physicians and hospitals learn from the outliers.

III. FILES REQUESTED

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

DATABASE	Level 1[1] or 2[2]	Single or Multiple Use	Year(s) Of Data Requested Current Yrs. Available 2009 - 2011

[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.

☐ Medical Claims	☐ Level 1 ☐ Level 2	Select...	☐ 2009 ☐ 2010 ☐ 2011
☐ Pharmacy Claims	☐ Level 1 ☐ Level 2	Select...	☐ 2009 ☐ 2010 ☐ 2011
☐ Dental Claims	☐ Level 2	Select...	☐ 2009 ☐ 2010 ☐ 2011
☐ Member Eligibility	☐ Level 2	Select...	☐ 2009 ☐ 2010 ☐ 2011
☐ Provider	☐ Level 2	Select...	☐ 2009 ☐ 2010 ☐ 2011
☐ Product	☐ Level 2	Select...	☐ 2009 ☐ 2010 ☐ 2011

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	1998-2012 Available (limited data available 1989-1997) 2005-2012
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	2002-2011 Available
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	2000-2011 Available

	Number	

IV. REQUESTED DATA ELEMENTS [APCD]

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. REQUESTED DATA ELEMENTS [CASE MIX]

Please use the CASE MIX DATA SPECIFICATION WORKBOOK to identify which deniable data elements (from Level 2 or above) you would like to request and attach this to your application.

VI. MEDICAID DATA

Federal law (42 USC 1396a(a)7) restricts the use of individually identifiable data of Medicaid recipients to uses that benefit 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 benefits the administration of the Medicaid program.

VII. MEDICARE DATA

Medicare data may be disseminated to state agencies and/or entities conducting research projects that are directed and partially funded by the state if such research projects would allow for a Privacy Board or an IRB to make the findings listed at 45 CFR 164.512(i)(2)(ii) if the anticipated data recipient were to apply for the data from CMS directly. If you are requesting Medicare data, please explain how your research project is directed and partially funded by the state and describe in detail why your proposed project meets the criteria set forth in 45 CFR 164.512(i)(2)(ii). Applicants must describe how they will use the data and inform CHIA where the data will be housed. CHIA must be informed if the data has been physically moved, transmitted, or disclosed.

VIII. DIRECT PATIENT IDENTIFIERS[3]

State and federal privacy laws may require the consent of Data Subjects prior to the release of any Direct Patient Identifiers. If you are requesting data that includes Direct Patient Identifiers, please provide documentation of patient consent or your basis for asserting that patient consent is not required.

IX. REQUESTS PURSUANT TO 957 CMR 5.04

[3] Direct Patient Identifiers. Personal information, such as name, social security number, and date of birth, that uniquely identifies an individual or that can be combined with other readily available information to uniquely identify an individual.

Payers, providers, provider organizations and researchers seeking access to Level 1 (de-identified) data are required to describe how they 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.

This data allows the researchers to benchmark hospital performance and efficiency over time and uncover the factors related to both increased and decreased efficiency. This information has many implications for reducing costs and improving patient care. For example, the results will provide health care managers with tools, knowledge, and strategies for reducing resource use and costs in line with higher performing peer organizations. Moreover, the results could also help inefficient hospitals identify ways to streamline patient care by reducing sources of waste and eliminating gaps or weaknesses in organizational processes. Both of these will contribute to lower costs of care.

X. 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		

XI. PURPOSE AND INTENDED USE

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

Benchmarking hospital performance over time has important implications for the overall health care system. Specifically, such work can shed light on ways in which hospital administrators and providers can reduce costs and waste. This could also free up resources for enhancing or reorganizing current care processes to improve quality, patient experience, and overall satisfaction. That is, this work could help promote a shift toward more care that is more efficient and "paient-centered".

As discussed above, the educational aspect of the proposed project is also in the public interest because it will empower current and future health care leaders with the skills and knowledge to re-engineer health care delivery processes.

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)?

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

☑ No, the IRB will review the project on __upon purchase of data_____.

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

☐ No, my organization does not have an IRB.

XII. APPLICANT QUALIFICATIONS

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

Jon Chilingerian, PhD

Dr. Jon A. Chilingerian is a tenured professor at Brandeis University and Adjunct Associate Professor of Public Health and Community Medicine at Tufts School of Medicine. He received his Ph.D. in Management from MIT's Sloan School of Management. He was recruited to come to Brandeis by Dr. Stuart Altman in 1987.

In 2011-2012, he was a visiting professor of organizational behavior and health care management at INSEAD in Fontainebleau, France. He teaches graduate courses and executive education sessions in Organizational Theory and Behavior, Management of Health Care Organizations, and Health Services Research. He began working with DEA as a Doctoral Student at Massachusetts Institute of Technology (MIT). Today he is an international expert on health applications of DEA. He is Principle Investigator and Director the AHRQ Doctoral Program in Health Services Research. He is founding director of the MD-MBA Program in Health Management with Tufts Medical School (1995-present), which today is the largest MD-MBA program in the United States with over 200 graduates. Since 1999, the program has graduated an average of 15 MD-MBA students each year. Professor Chilingerian has lectured across the globe including, Armenia, Belgium, Brazil, China, Denmark, England, Netherlands, Singapore, South Africa, and Spain. He is Program Director of the Brandeis Health Leadership Program, a one-week residential program sponsored by the American College of Surgeons, and the Thoracic Surgery Foundation for Research and Education. Between 1997 and 2011, he directed the European Health Leader's Program, a two-week residential program with nearly 800 alumni. In May 2012, he launched an Advanced Health Policy and Leadership Academy in partnership with the Hanley Center in Maine, which over the next five years will train nearly 10% of all the physicians in the State of Maine.

Dr. Chilingerian is the co-author of *International Health Care Management*, published by Elsevier Press (Summer 2005), and *The Lessons and the Legacy of the Pew Health Policy Program*, with Corinne Kay, published in 1997 by the Institute of Medicine National Academy Press. He has scholarly papers and review essays published in journals such as: Annals of Operational Research, Medical Care, European Journal of Operational Research, Health Services Research, Health Care Management Review, Medical Care Research and Review, Inquiry, Health Services Management Research, and The Journal of Health Politics, Policy and Law. Dr. Chilingerian was former chair of the Health Care Management Division of the Academy of Management. His research focuses on managing health care organizations, ranging from studies of executive leadership and management of professionals to the measurement of performance (i.e., productive efficiency, quality, etc.), identification of physician best practices and the analysis of effective operating strategies. He is currently working on advancing clinical applications of DEA by studying quality, productivity, and technical change in a variety of procedures such as: orthopedic, cardiac and breast cancer surgeries.

Dr. Chilingerian was Assistant Health Commissioner for the City of Boston (1978-1982) past-chair of

the Health Care Management Division of the Academy of Management, and 2010 recipient of the Myron Fottler Exceptional Service Award for the Academy of Management. He is the recipient of several academic awards, such as the Academy of Management (Health Care Division's) "Best Paper Award." His research focuses on managing health care organizations, ranging from studies of executive leadership and management of professionals to the measurement of performance (i.e., productive efficiency, quality, etc.), identification of physician best practices and the analysis of effective operating strategies. He is an expert on health care performance studies using mathematical programming and frontier analysis. He recently completed an international study of 444 international health leaders.

Andrew Wilson, MPH, MA

Andrew Wilson is a PhD candidate in Health Services Research and an AHRQ Fellow at Brandeis University. As both a researcher and student, he has conducted several research projects using large data sets. This includes statistical analyses of medical and pharmacy claims data for the Medicare, Medicaid, and commercially insured populations, administrative data from primary care practices in the United Kingdom, and data extracted from patient electronic health records. These have led to several peer-reviewed publications, poster and podium presentations, and other reports. In addition, Andrew has extensive training and experience in research design and ethics, statistics, econometrics, and policy analysis. He is proficient with SAS and Stata.

Andrew received a Master of Public Health with a concentration in health services management and policy from the Tufts Universiy School of Medicine. He also holds a Master of Arts degree in Social Policy with a concentration in health services research from the Florence Heller School of Social Policy and Management at Brandeis University.

2. Attach résumés or curriculum 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.)

XIII. 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.

All patient-level data will be aggregated at the physician and hospital-levels and linked with other hospital- and market-level data, including the American Hospital Association Annual Survey and Area Resource File. These data sources will provide important organizational and market-level covariates and explanatory variables in our statistical models.

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

No data on individual patients will be reported in any analyses or reports and all patient IDs will be removed from all analytic data files. In addition, no data will included in the analyses for any provider or facility with <5 discharges.

XIV. 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, or similar document.

The researchers intend to primarily publish the results of the proposed projects in the peer-reviewed academic literature. The results may also be made available through white papers and other unpublished reports provided to interested individuals or groups. Results will also be included in class handouts and presentation slides.

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.

Yes. Any interested party may contact the researchers and receive a copy of the results free of charge.

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.

XV. 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:	

1. 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 ☐

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

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

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