Commonwealth of Massachusetts
Center for Health Information & Analysis (CHIA)
Non-Governmental Application for Case Mix Data

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

<u>**NOTE:**</u> **In order for your application to be processed, you must submit the required application fee. Please consult the fee schedule 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:	Denny Brennan
Title:	Executive Director
Organization:	Massachusetts Health Data Consortium
Project Title:	Casemix Data for Spotlight Analytics - 2014
Mailing Address:	460 Totten Pond Rd., Ste 690, Waltham, MA 02451
Telephone Number:	(781) 419-7807
Email Address:	dbrennan@mahealthdata.org
Names of Co-Investigators:	Brian Kelley
Email Addresses of Co-Investigators:	bkelley@mahealthdata.org
Original Data Request Submission Date:	July 2, 2015
Dates Data Request Revised:	
Project Objectives (240 character limit)	To update the case mix data and improve the modeling and risk assessment capabilities of MHDC's analytics application, Spotlight, for payers and providers. These enhancements will improve the quality of analyses to reduce costs, improve patient access and quality, while preserving patient privacy.
Project Research Questions (if applicable)	(Not applicable)

II. PROJECT SUMMARY

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

MHDC has provided health data and analysis to the Commonwealth's health care organizations since our founding in 1978 by representatives of State government and hospitals. Our analyses have focused on cost, quality and availability of care and have used data provided by CHIA, its predecessor agencies and, originally, by MHDC's members directly to MHDC.

With the July 2013 passage of 957 CMR 5.00, CHIA was made the sole provider of health data submitted to the State by payers and providers. For MHDC to sustain its not-for-profit data mission and continue to deliver analysis services that supported the public interest, the organization developed Spotlight.

Spotlight's analytics serves the public interest by enabling payers and providers to:
- identify and address underserved populations and geographies
- recognize and adapt to changes in community demographics and disease prevalence
- pinpoint and reduce unnecessary practice variation and medical expenditures

- target tangible improvements in quality and cost-effectiveness relative to state norms

Spotlight ensures patient privacy by:
- providing the value of claims analyses without access to the source CHIA data
- complying with cell size suppression requirement to futher reduce the possibility of patient identification

III. FILES REQUESTED

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

CASE MIX	Levels 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 **PLEASE PROVIDE JUSTIFICATION BELOW FOR REQUESTING THE CHOSEN LEVEL:** MHDC uses the UHIN and UPN to link the CHIA data sets across type (discharge, observation, ED) and by year to enable more robust longitudinal and cross-sectional analyses. MHDC does NOT mix CHIA data with data from other sources.	1998 – 2013 Available (limited data 1989-1997) 2014 - 2010 2009 2008[1] 2007 2006 2005
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 **PLEASE PROVIDE JUSTIFICATION BELOW FOR REQUESTING THE CHOSEN LEVEL:** MHDC uses the UHIN and UPN to link the CHIA data sets across type (discharge, observation, ED) and by year to enable more robust longitudinal and cross-sectional analyses. MHDC does NOT mix CHIA data with data from other sources.	2002 – 2013 Available 2014 - 2010 2009 2008 2007 2006 2005
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 ☐Level 5 – Date(s) of Admission; Discharge; Significant Procedures ☐Level 6 – Date of Birth; Medical Record Number; Billing Number **PLEASE PROVIDE JUSTIFICATION BELOW FOR REQUESTING THE CHOSEN LEVEL:** MHDC uses the UHIN and UPN to link the CHIA data sets across type (discharge, observation, ED) and by year to enable more robust longitudinal and cross-sectional analyses. MHDC does NOT mix CHIA data with data from other sources..	2000 – 2013 Available 2014 - 2010 2009 2008 2007 2006 2005

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[1] MHDC will accept partial extracts, e.g., 2009-2014, if earlier extracts are not yet ready for release.

IV. FEE INFORMATION

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

☐ 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.

V. REQUESTS PURSUANT TO 957 CMR 5.04 (Researchers, Payers, Providers, and Provider Organizations)
Please complete only if you are requesting Level 1 (de-identified) Case Mix.
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.

VI. ALL OTHER REQUESTS - PURPOSE AND INTENDED USE
 1. Please explain why completing your project is in the public interest.

> MHDC, through Spotlight, supports the public interest in the following ways:
>
> - Health care providers and plans will improve health quality and cost-effectiveness by identifying and reducing the use of health services that do not improve clinical outcomes.
> - Payers and providers will improve the coordination of patient care by identifying and changing practices that neither improve patients' experiences or health outcomes.
> - By better understanding the incidence and variation of disease across geography and patient demographics, health care organizations can allocate clinical and financial resources to populations with the greatest needs, improving population health and patient access to needed services.
> - By better understanding inpatient and outpatient market share, healthcare organizations can better target services to those geographic areas and patient populations that need them.

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

 3. Files named Exhibits A and B in IRBNet.

4. 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.

5.

VII. APPLICANT QUALIFICATIONS

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

> The Consortium has been providing Case Mix Data and Analytics to our clients for 37 years, without breach or compromise to patient privacy. In 2015 , MHDC launched Spotlight Analytics, to enable payers and providers to conduct secure and compliant Case Mix analyses without accessing source Case Mix data.

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.)

   See Exhibit C: Project Team Bios in IRBNet.

VIII. 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:

   > N/A

   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:

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

☐   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:

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

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 that algorithm will link each dataset.

> N/A

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

> N/A

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.

IX. 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.

> MHDC has **no** plans to publish or disclose CHIA data publicly in any setting.

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 will **not** be publicly available, they are only available to health care providers, payers and their industry associations.

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.

Spotlight Analytics is a web-based, secure and compliant health data analysis utility. Spotlight contains no source CHIA data. Rather, it uses aggregations, or cubes, of CHIA data to produce tables, charts and visualizations of:

- Market Share and Market Share Trends
- Patient Origin
- Disease Volume Trends
- Hospital and Health System Key Performance Indicators
- Clinical Practice, Charge & Cost Variation
- Data Integrity
- User-Defined Analyses

At no time is CHIA data ever exposed to the end-user of Spotlight, who accesses the service via a secure and encrypted connection. CHIA data are used only to develop the data cubes that support Spotlight analyses. After these cubes are created, the CHIA source data are encrypted and stored in a separate and isolated data server to ensure privacy, security and availability for Spotlight enhancements, when needed.

(Please review the Spotlight Analytics overview provided in MHDC's application materials for more specifics.)

X. 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:	HBI Solutions
Contact Person:	Eric Widen
Title:	President
Address:	530 Lytton Avenue, Second Floor, Palo Alto, CA 94301
Telephone Number:	(415) 350-3140
E-mail Address:	ewiden@hbisolutions.com
Organization Website:	www.hbisolutions.com

Company Name:	HBI Solutions
Contact Person:	Frank Stearns
Title:	Executive Vice President
Address:	1 Oak Meadow Dr Northborough, MA 01532
Telephone Number:	(617) 779-7138
E-mail Address:	fstearns@hbisolutions.com
Organization Website:	www.hbisolutions.com

Company Name:	HBI Solutions
Contact Person:	Bo Jin
Title:	Architect / Engineer
Address:	530 Lytton Avenue, Second Floor, Palo Alto, CA 94301
Telephone Number:	(415) 350-3140
E-mail Address:	ejin@hbisolutions.com
Organization Website:	www.hbisolutions.com

Company Name:	HBI Solutions
Contact Person:	Charles Zhu
Title:	Engineer
Address:	530 Lytton Avenue, Second Floor, Palo Alto, CA 94301
Telephone Number:	(415) 350-3140
E-mail Address:	czhu@hbisolutions.com
Organization Website:	www.hbisolutions.com

Company Name:	HBI Solutions
Contact Person:	Dorothy Dai
Title:	Client Support Analyst
Address:	530 Lytton Avenue, Second Floor, Palo Alto, CA 94301
Telephone Number:	(415) 350-3140
E-mail Address:	ddau@hbisolutions.com
Organization Website:	www.hbisolutions.com

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 iormation 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.

> Application development, Installation and provision of ongoing support to the Spotlight Healthcare Data Platform and Spotlight Healthcare Analytics module. The Spotlight Data Platform uses data in OLAP cubes aggregated and abstracted from CHIA data to support the analytic dashboards.

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

> HBI Solutions is a healthcare data analytics company headquartered in Silicon Valley. The company is four years old and their business is dedicated to health data analysis exclusively. The company was founded by Stanford researchers and healthcare leaders, each with over 20 years' experience in healthcare IT and data. Their technology is currently installed in the Maine Health Information Exchange which includes a five-year longitudinal history on over 1.3mn people and over 20mn encounters. The product is securely accessed by physicians, nurses, administrators and staff throughout the state on a daily basis. HBI has entered into HIPAA BAA and subcontractor arrangements associated with managing protected health information for its clients.

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

> - Denny Brennan, Executive Director and the Project Executive, will oversee the relationship with HBI Solutions.
> - The technical activities and actions of HBI Solutions will be overseen by Brian Kelley, Director of IT & Data Services at MHDC and the Project's Data Steward.
> - The review and documentation of all security and privacy-related activities of HBI Solutions will be overseen by Michele Alexanian, Director of Finance and the Chief Compliance Officer.
> - Oversight and monitoring occurs during weekly status meetings spanning all phases and activities of the project including:
>   - Data receipt and loading; remove any temp files
>   - Prepare for and upload to Amazon Web Services environment
>   - Stage and create OLAP data cubes; backup cubes & remove/delete original files
>   - Test application with newly created cubes
>   - Move cubes to production
>   - Return/destroy original CHIA data
>   - Changes in project staff and/or responsibilities

XIII. 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.

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 practices to protect CHIA data in a manner consistent with the requirements of the federal Health Insurance Portability and Accountability Act of 1996 (HIPAA).

Data Recipients must promptly notify CHIA of any unauthorized use or disclosure of CHIA data.

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:	Denny Brennan
Original Application Submission Date:	7/2/2015
Dates Application Revised:	9/15/2015