

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

This form is required by all Applicants, except Government Agencies as defined in [957 CMR 5.02](#). All Applicants must also complete the Data Management Plan, attached to this Application. The Application and the [Data Management Plan](#) must be signed by an authorized signatory of the organization. This Application and the Data Management Plan will be used by CHIA to determine if your organization may receive CHIA data. Please be sure the documents are completed fully and accurately. You may wish to consult the Evaluation Guide that CHIA will use to review your documents. Prior to receiving CHIA Data, the organization must execute the [Data Use Agreement](#). You may wish to review that document as you complete these forms.

NOTE: 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.

All attachments must be uploaded to IRBNet with your Application. All applications documents can be found on the [CHIA website](#) in Word and/or PDF format.

I. GENERAL INFORMATION

| APPLICANT INFORMATION | |
|--|---|
| Applicant Name: | Denny Brennan |
| Title: | Executive Director |
| Organization: | Massachusetts Health Data Consortium |
| Project Title: | Casemix Data for Spotlight Analytics – 2015 |
| IRBNet ID: | Bkelley |
| Mailing Address: | 460 Totten Pond Rd, Ste 690, Waltham MA 02451 |
| Telephone Number: | (781) 419-7810 |
| Email Address: | dbrennan@mahealthdata.org |
| Names of Co-Investigators: | Brian Kelley |
| Email Addresses of Co-Investigators: | bkelly@mahealthdata.org |
| Original Data Request Submission Date: | 7/6/2016 |
| Dates Data Request Revised: | |
| Project Objectives (240 character limit): | Add 2015 casemix data to Spotlight Analytics platform we introduced in 2013. 2014 version contains 6 years (2009-2014) already. Goal is to produce a ten year statistical model analyses using aggregated data to inform providers' and health plans' efforts to reduce cost and improve quality and access while preserving patient privacy. |
| Project Research Questions (if applicable) Business Use Case(s): | (Not applicable) |

II. PUBLIC INTEREST & PROJECT SUMMARY

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

To serve the public interest by

- providing the Commonwealth's providers and payers with aggregated hospital data and analyses to improve health care cost, utilization, access and quality
- enabling the Commonwealth’s providers and payers to predict the relative risk of high cost and adverse health outcomes to support population health management initiatives
- Utilizing 10 years of data to provide more robust statistical modeling

To ensure patient privacy by providing the value of claims analyses without access to the source CHIA data and by complying with the small cell suppression requirement.

2. Has an Institutional Review Board (IRB) reviewed your project?

- Yes, a copy of the approval letter and protocol must be **attached** to this Application
- No, this project is not human subject research and does not require IRB review.

3. If your project has not been reviewed by an IRB, please **attach** a brief (1-2 page) description of your project including the methodology, objectives, and research questions.

III. DATA FILES REQUESTED *[Applicants seeking 2015 data only should skip to Question 2]*

1. *FY 2004 – 2014 Data*: Please indicate the Case Mix files from which you seek data, the Level(s), the year(s) of data requested, and your justification for requesting *each* file. Please refer to the [Case Mix Data Specifications](#) for details of the file contents.

| CASE MIX FILES | Levels 1 – 6 | Years Available 2004 - 2014 |
|-------------------------------|--|-----------------------------------|
| Inpatient Discharge | <input type="checkbox"/> Level 1 – 3 Digit Zip Code <input type="checkbox"/> Level 2 – Unique Physician Number (UPN) + 5 Digit Zip Code <input type="checkbox"/> Level 3 – Unique Health Information Number (UHIN) <input type="checkbox"/> Level 4 – UHIN and UPN <input type="checkbox"/> Level 5 – Date(s) of Admission; Discharge; Significant Procedures <input type="checkbox"/> Level 6 – Date of Birth; Medical Record Number; Billing Number PLEASE PROVIDE JUSTIFICATION BELOW FOR REQUESTING THE CHOSEN LEVEL: | Year(s) of Data Requested: |
| Outpatient Observation | <input type="checkbox"/> Level 1 – 3 Digit Zip Code <input type="checkbox"/> Level 2 – Unique Physician Number (UPN) <input type="checkbox"/> Level 3 – Unique Health Information Number (UHIN) <input type="checkbox"/> Level 4 – UHIN and UPN | Year(s) of Data Requested: |

| | | |
|-----------------------------|---|-----------------------------------|
| | <input type="checkbox"/> Level 5 – Date(s) of Admission; Discharge; Significant Procedures <input type="checkbox"/> Level 6 – Date of Birth; Medical Record Number; Billing Number PLEASE PROVIDE JUSTIFICATION BELOW FOR REQUESTING THE CHOSEN LEVEL: | |
| Emergency Department | <input type="checkbox"/> Level 1 – 3 Digit Zip Code <input type="checkbox"/> Level 2 – Unique Physician Number (UPN) <input type="checkbox"/> Level 3 – Unique Health Information Number (UHIN) <input type="checkbox"/> Level 4 – UHIN and UPN <input type="checkbox"/> Level 5 – Date(s) of Admission; Discharge; Significant Procedures <input type="checkbox"/> Level 6 – Date of Birth; Medical Record Number; Billing Number PLEASE PROVIDE JUSTIFICATION BELOW FOR REQUESTING THE CHOSEN LEVEL: | Year(s) of Data Requested: |

2. FY 2015 Data: Beginning with fiscal year 2015, Massachusetts Acute Care Hospital and Case Mix and Charge Data (collectively Case Mix Data) are released in **Limited Data Set (LDS) files**. Please refer to the [Case Mix Data Specifications](#) for details of the file contents.

Please indicate the Case Mix files from which you seek data, the year(s) of data requested, and your justification for requesting each file.

| CASE MIX LIMITED DATA SET FILES | Year(s) Of Data Requested Current Yrs. Available <input checked="" type="checkbox"/> 2015 |
|---|--|
| <input checked="" type="checkbox"/> Inpatient Discharge | Please describe how your research objectives require Inpatient Discharge data: Providing Inpatient analytics to Consortium clients helps providers manage costs in accountable care organizations, with the goal of lowering costs for all healthcare consumers in Massachusetts. Additionally, case mix analytics enable healthcare providers to improve site, service and resource utilization to guide clinical quality improvement programs. |
| <input checked="" type="checkbox"/> Outpatient Observation | Please describe how your research objectives require Outpatient Observation data: Providing Observation Stays in addition to Inpatient Discharges (see previous question) allows us to provide a more complete picture of the hospital care experience. |

| | |
|---|---|
| <input checked="" type="checkbox"/> Emergency Department | <p>Please describe how your research objectives require Emergency Department data:</p> <p>Providing Emergency Department Visits in addition to Observation Stays and Inpatient Discharges (see previous 2 questions) allows us to provide a more complete picture of the hospital care experience.</p> |
|---|---|

Sections IV-IX must be completed by all Applicants requesting 2015 data. Applications that only include requests for prior years of data can skip to Section X.

IV. GEOGRAPHIC DETAIL

Please choose one of the following geographic options for MA residents:

| | | | |
|---|---|---|--|
| <input type="checkbox"/> 3 Digit Zip Code (Standard) | <input type="checkbox"/> 3 Digit Zip Code & City/Municipality *** | <input type="checkbox"/> 5 Digit Zip Code *** | <input checked="" type="checkbox"/> 5 Digit Zip Code & City/Municipality *** |
| <p>***Please provide justification for the chosen level of geographic detail if requesting something other than 3-Digit Zip Code only. Refer to specifics in your methodology:</p> <p>Providers designate their primary, secondary, and tertiary service areas by aggregating zip codes. MHDC requires five-digit zip codes in order to construct each subscriber's service areas.</p> | | | |

V. DEMOGRAPHIC DETAIL

Please choose one of the following demographic options:

| | |
|--|---|
| <input type="checkbox"/> Not Requested (Standard) | <input checked="" type="checkbox"/> Race & Ethnicity*** |
| <p>*** If requested please, provide justification for requesting Race and Ethnicity. Refer to specifics in your methodology:</p> <p>Race and ethnicity data allows Spotlight clients to analyze potential racial disparities.</p> | |

VI. DATE DETAIL

Please choose one option from the following options for dates:

| | | |
|--|---|---|
| <input type="checkbox"/> Year (YYYY)(Standard) | <input type="checkbox"/> Month (YYYYMM) *** | <input checked="" type="checkbox"/> Day (YYYYMMDD)*** |
|--|---|---|

*****Please provide justification for the chosen level of date detail if requesting Month or Day. Refer to specifics in your methodology:**

Day-level detail, where available, is necessary to calculate readmissions and other date-driven quality indicators. Additionally, day-level detail informs more robust construction of clinical episodes and the cost, utilization, and quality attributes associated with them.

VII. PHYSICIAN IDENTIFICATION NUMBERS (UPN)

Please choose one of the following options for Provider Identifier(s):

| | | |
|---|---|--|
| <input type="checkbox"/> Not Requested (Standard) | <input checked="" type="checkbox"/> Hashed ID *** | <input type="checkbox"/> Board of Registration in Medicine # (BORIM) *** |
| <p>***If requested please, provide justification for requesting Hashed ID or BORIM #. Refer to specifics in your methodology:</p> <p>The Hashed Physician ID will be used to identify clinical episodes more accurately, as mentioned above.</p> | | |

VIII. HASHED UNIQUE HEALTH IDENTIFICATION NUMBER (UHIN)

Please choose one of the following:

| | |
|---|--|
| <input type="checkbox"/> Not Requested (Standard) | <input checked="" type="checkbox"/> UHIN Requested *** |
| <p>*** If requested please, provide justification for requesting UHIN. Refer to specifics in your methodology:</p> <p>The UHIN is necessary to calculate readmissions and to determine whether an Inpatient discharge, Observation stay and ED visit belongs to the same individual.</p> | |

IX. HASHED MOTHER’S SOCIAL SECURITY NUMBER

Please choose one of the following:

| | |
|--|--|
| <input checked="" type="checkbox"/> Not Requested (Standard) | <input type="checkbox"/> Hashed Mother’s SSN Requested *** |
| <p>*** If requested please, provide justification for requesting Hashed Mother’s SSN. Refer to specifics in your methodology:</p> | |

X. 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, please indicate below the types of database to which CHIA Data 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 level (e.g., American Hospital Association data)
- Aggregate Data (e.g., Census data)
- Other (please describe):

3. If yes, describe the data base(s) to which the CHIA Data will be linked, which CHIA data elements will be linked; and the purpose for the linkage(s):

n/a

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.

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

XI. PUBLICATION / DISSEMINATION / RE-RELEASE

1. Describe your plans to publish or otherwise disclose CHIA Data, or any data derived or extracted from such CHIA Data, in any paper, report, website, statistical tabulation, seminar, conference, or other setting. 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 display a cell less than 11, and no percentages or other mathematical formulas will be used if they result in the display of a cell less than 11.

We have no plans to publish or disclose CHIA data publicly in any setting.

2. Do you anticipate that the results of your analysis will be published and/or publically available to any interested party? Please describe how an interested party will obtain your analysis and, if applicable, the amount of the fee, that the third party must pay.

The results will not be publicly available, they are only available to our Consortium clients who purchase the right to use the software tool that analyzes the data and generates reports

3. Will you use CHIA Data for consulting purposes?

- Yes
- No

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

- Yes
- No

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

- Yes
- No

6. Will you be reselling CHIA Data in any format?

- Yes
- No

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

The Spotlight Data Platform houses the CHIA data in an encrypted database from which data cubes of abstracted and aggregated are used to support the analytic dashboards It will be available to our subscribers only, who pay for a yearly subscription

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

The Spotlight Data Platform houses the CHIA data in an encrypted database from which data cubes of abstracted and aggregated are used to support the analytic dashboards. A “Data cube”, also called an OLAP (online analytical processing) cube, is a method of storing data in a multidimensional form, generally for reporting purposes. In OLAP cubes, data (measures) are categorized by dimensions. OLAP cubes are often pre-summarized across dimensions to drastically improve query time over relational databases. The query language used to interact and perform tasks with OLAP cubes is multidimensional expressions (MDX).

8. If you have answered “yes” to questions 4, 5, or 6, what is the fee you will charge for such products, services or studies?

The fee varies based on the size of the hospital (# of beds) that is subscribing to the platform.

XII. APPLICANT QUALIFICATIONS

1. Describe your qualifications (and the qualifications of your co-investigators) to perform the research described.

The Consortium has been providing Hospital data to our clients for 38 years, in a secure environment. In 2013 we created the Spotlight Analytics front-end, working with a well established company whose qualifications are described in section XII. We will add this year’s casemix to the previous years, bringing us to 7 years of data, to provide more robust statistical models, and to provide users with the most current data.

2. **Attach** résumés or curricula vitae of the Applicant/principal investigator, and co-investigators. (These attachments will not be posted on the internet.)

XIII. USE OF AGENTS AND/OR CONTRACTORS

Please note: 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.

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 Ave, 2 nd Floor, Palo Alto, CA 94301 |
| Telephone Number: | (415) 350-3140 |
| E-mail Address: | ewiden@hbisolutions.com |
| Organization Website: | Hbisolutions.com |

1. Will the agent have access to the CHIA Data at a location other than your location, your off-site server and/or your database?

- Yes, a separate Data Management Plan must be completed by each agent who will store CHIA Data
- No

2. Describe the tasks and products assigned to this agent for this project; their qualifications for completing the tasks; and the Organization’s oversight of the agent, including how the Organization will ensure the security of the CHIA Data to which the agent has access.

HBI Solutions is a healthcare data analytics company headquartered in Silicon Valley. The company is four years old and their products are only related to healthcare analytics. The company was founded by Stanford researchers and healthcare leaders each with over 20 years’ experience in healthcare IT and data. Aside from our current Spotlight installation, their product is 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.

XIV. FEE INFORMATION

Please consult the [fee schedules](#) for Case Mix Data and select from the following options:

- Single Use
- Limited Multiple Use

Multiple Use

Are you requesting a fee waiver?

Yes

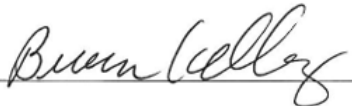

No

If yes, please refer to the [Application Fee Remittance Form](#) and submit a letter stating the basis for your request (if required). 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.

By submitting this Application, the Data Applicant attests that it is aware of its data use, privacy and security obligations imposed by state and federal law *and* is compliant with such use, privacy and security standards. The Data Applicant further agrees and understands that it is solely responsible for any breaches or unauthorized access, disclosure or use of any CHIA Data provided in connection with an approved Application, including, but not limited to, any breach or unauthorized access, disclosure or use by its agents.

Applicants requesting data from CHIA will be provided with data following the execution of a Data Use Agreement that requires the Data Applicant to adhere to processes and procedures aimed at preventing unauthorized access, disclosure or use of data.

By my signature below, I attest to: (1) the accuracy of the information provided herein; (2) that the requested data is the minimum necessary to accomplish the purposes described herein; (3) the Data Applicant will meet the data privacy and security requirements describe 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 (4) my authority to bind the organization seeking CHIA Data for the purposes described herein.

| | |
|--|---|
| Signature: (Authorized Agent) |  |
| Printed Name : | Brian Kelley |
| Title: | Director of IT and Data Services |
| Applicant's Signature: |  |
| Name: | Denny Brennan |
| Title: | Executive Director |
| Original Data Request Submission Date: | 7/6/2016 |
| Dates Data Request Revised: | |

Attachments. Please indicate below which documents have been attached to the Application and uploaded to IRBNet:

- 1. IRB approval letter or summary of project (if applicable)
- 2. Resumes of Applicant and co-investigators
- 3. Data Management Plan (for each institution that will store CHIA Data)