

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:	Sarah Nguyen
Title:	Sr. Public Policy and Research Project Mgr.
Organization:	Steward Health Care System LLC ("Steward")
Project Title:	Understanding Trends and Changes in the Massachusetts Health Care Market
IRBNet ID:	958183-1
Mailing Address:	500 Boylston St., Suite 500 Boston, MA 02116
Telephone Number:	617-419-4727
Email Address:	Sarah.Nguyen@steward.org
Names of Co-Investigators:	Sarah Nguyen, Sr. Project Manager Gregory Watts, Policy Analyst
Email Addresses of Co-Investigators:	Sarah.Nguyen@steward.org Gregory.Watts@steward.org
Original Data Request Submission Date:	9/13/2016
Dates Data Request Revised:	9/29/2016, 10/4/2016
Project Objectives (240 character limit):	Steward seeks to deepen its understanding of the Massachusetts health care market, including the examination of inpatient, outpatient, and ED utilization patterns in Massachusetts. The requested data will help Steward understand the market and the organization's impact on that market, and will inform planning efforts to deliver the services our patients need while driving value in the market.
Project Research Questions (if applicable) Business Use Case(s):	1.What are the patterns of inpatient, outpatient, and ED utilization in the Massachusetts' health care market and how do those patterns vary by

	<p>geography, payer type, and type of service? How have these patterns varied over time?</p> <p>2. How have new models of care (e.g. accountable care organizations) and changes to the health care landscape impacted the way Massachusetts residents utilize inpatient, outpatient, and ED services?</p> <p>3. Where do Steward's patients come from? What are the current health care needs of the communities Steward serves?</p> <p>4. What is the impact of Steward's integrated community care model on patient utilization?</p> <p>5. How can trends observed in inpatient, outpatient, and ED utilization support system-wide planning efforts?</p>
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II. PUBLIC INTEREST & PROJECT SUMMARY

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

The Massachusetts health care market has undergone great change in recent years and stands poised for additional changes. Steward seeks to use case mix data to understand inpatient, outpatient, and ED utilization patterns in Massachusetts, which will inform Steward's health system planning for the needs of the communities we serve. Through multiple and ongoing analyses, Steward seeks to also understand our patient base and service mix against the overall market environment. With this information, Steward can conduct health resource planning for each of the communities where we provide care.

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		Year(s) of Data Requested:

	<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:	N/A
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 <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: N/A
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: N/A

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
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<input checked="" type="checkbox"/> Inpatient Discharge	Please describe how your research objectives require Inpatient Discharge data: The inpatient discharge data will allow Steward to understand the market dynamics and trends in inpatient utilization. This will allow Steward to plan appropriately and provide the services that patients in our service areas need. Without inpatient discharge data, Steward will be unable to accurately understand the inpatient market and will make providing valuable care to the community more difficult.
<input checked="" type="checkbox"/> Outpatient Observation	Please describe how your research objectives require Outpatient Observation data: The outpatient observation data will allow Steward to understand the market dynamics and trends in outpatient utilization. This will allow Steward to plan appropriately and provide the outpatient services that patients in our service areas need. Without outpatient data, it will be difficult for Steward to accurately plan to provide the needed outpatient services in our community.
<input checked="" type="checkbox"/> Emergency Department	Please describe how your research objectives require Emergency Department data: The ED utilization data will allow Steward to understand the market dynamics and trends in ED utilization. This will allow Steward to plan appropriately and provide the ED services that patients in our service areas need. Without ED utilization data, Steward will be unable to accurately understand the ED market and will make providing valuable care to the community more difficult.

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: Steward is requesting zip code & city/municipality data to analyze utilization trends. With this level of data we will study changes in utilization such as patient migration, physician referral patterns, and lengths of stays for specific services in each geography. It is essential to break this analysis down by zip code to understand migration of care and services specifically within our 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: Steward is requesting race and ethnicity data to analyze any variances in utilization trends or disease occurrence by race/ethnicity. With this level of data we will study changes in utilization such as patient migration, physician referral patterns, and lengths of stays for specific services in each geography.</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)***
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<p>***Please provide justification for the chosen level of date detail if requesting Month or Day. Refer to specifics in your methodology: Steward is requesting date of service to analyze utilization trends. With this level of data we will study changes in utilization such as patient migration, physician referral patterns, and lengths of stays for specific services in each geography. We will also analyze any trends in seasonality and/or variances in utilization around holidays or during different times of the month.</p>
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VII. PHYSICIAN IDENTIFICATION NUMBERS (UPN)

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

<input type="checkbox"/> Not Requested (Standard)	<input type="checkbox"/> Hashed ID ***	<input checked="" 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>Steward is requesting BORIM to analyze utilization trends. With this level of data we will study changes in utilization such as patient migration, physician referral patterns, and lengths of stays for specific services in each geography.</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>Steward is requesting UHIN to analyze utilization trends. With this level of data we will study changes in utilization such as patient migration, physician referral patterns, and lengths of stays for specific services in each geography.</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):

To understand the raw data provided by CHIA, Steward will link aggregate level data to definition tables provided by CHIA, as well as crosswalk tables we have previously purchased from the Massachusetts Health Data Consortium (MHDC). This includes:

- DRG Crosswalk: This crosswalk contains a mapping of DRGs to DRG description, service line, and subservice line. Service lines and subservice lines are not available in CHIA definition tables.

Steward will also link town to census data for county level analysis.

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.

We will rely on purchased MHDC crosswalk tables as specified above. These crosswalk tables are owned by Steward. Linkages will be established to the following CHIA data elements:

- DRG Crosswalk: CMS270_DIS_DRG

The linkage of town to census data for county level analysis is deterministic.

Linkages will be made within the Microsoft Access file environment of the CHIA inpatient, outpatient and ED databases. No algorithms will be used.

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

All queries to the linked data will be conducted in an aggregate manner within Microsoft Access. Our scope of study is focused on aggregate data—whether limited to a specific geography, payer, or service. As such, individual patient information will not be part of our analyses.

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.

Steward may occasionally share limited de-identified aggregated analyses of the CHIA Case Mix data with state agencies, such as MassHealth and the Health Policy Commission, to support or advance health care policy initiatives that will enable Steward to meet its mission of providing world class health care in the communities where our patients live. Please note that it is not our intention to use these data requested from CHIA in any litigation.

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 of Steward's analyses are generally not available to the public or for any interested party, though as noted above, Steward may occasionally choose to make public its analyses.

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.)?

N/A

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

N/A

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?

N/A

XII. APPLICANT QUALIFICATIONS

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

Steward has leveraged Case Mix data from the Massachusetts Health Data Consortium since 2010 for internal analyses. Collectively, our team has over 40 years of experience in health care and data analytics, and we have been trained in statistical and data analysis. Additional supporting detail may be found in the attached resumes.

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:	N/A
Contact Person:	
Title:	
Address:	
Telephone Number:	
E-mail Address:	
Organization Website:	

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? N/A

- 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.

N/A

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

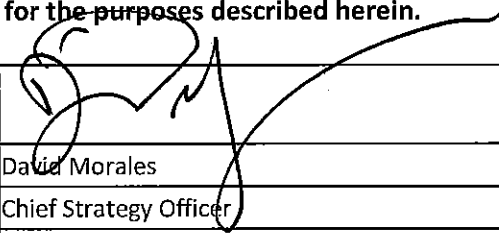
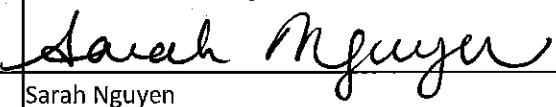
If yes, please refer to the Application Fee Remittance Form and submit a letter stating the basis for your request (if required). Please refer to the fee schedule for qualifications for receiving a fee waiver. If you are requesting a waiver

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 :	David Morales
Title:	Chief Strategy Officer
Applicant's Signature:	
Name:	Sarah Nguyen
Title:	Sr. Public Policy & Research Project Mgr.
Original Data Request Submission Date:	9/13/2016
Dates Data Request Revised:	9/29/2016, 10/4/2016

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)