

Non-Governmental Application for Massachusetts Case Mix and Charge Data [Exhibit A]

I. INSTRUCTIONS

This form is required for all Applicants, except Government Agencies as defined in [957 CMR 5.02](#), requesting protected health information. 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 whether the request meets the criteria for data release, pursuant to 957 CMR 5.00. Please complete the Application documents fully and accurately. Prior to receiving CHIA Data, the Organization must execute CHIA's [Data Use Agreement](#). Applicants may wish to review that document prior to submitting this Application.

Before completing this Application, please review the data request information on CHIA's website:

- [Data Availability](#)
- [Fee Schedule](#)
- [Data Request Process](#)

After reviewing the information on the website and this Application, please contact CHIA at casemix.data@state.ma.us if you have additional questions about how to complete this form.

All attachments must be uploaded to IRBNet with your Application. All Application documents can be found on the [CHIA website](#) in Word and in PDF format or on [IRBNet](#) in Word format. If you submit a PDF document, please also include a Word version in order to facilitate edits that may be needed.

Applications will not be reviewed until the Application and all supporting documents are complete and the required application fee is submitted. A [Fee Remittance Form](#) with instructions for submitting the application fee is available on the CHIA website and IRBNet. If you are requesting a fee waiver, a copy of the Fee Remittance Form and any supporting documentation must be uploaded to IRBNet.

II. FEE INFORMATION

1. Consult the most current [Fee Schedule](#) for Case Mix and Charge Data.
2. After reviewing the Fee Schedule, if you have any questions about the application or data fees, contact casemix.data@state.ma.us.
3. If you believe that you qualify for a fee waiver, complete and submit the [Fee Remittance Form](#) and attach it and all required supporting documentation with your application. Refer to the [Fee Schedule](#) (effective Feb 1, 2017) for fee waiver criteria.
4. Applications will not be reviewed until the application fee is received.
5. Data for approved Applications will not be released until the payment for the Data is received.

III. ORGANIZATION AND INVESTIGATOR INFORMATION

Project Title:	ChimeData Analytics
IRBNet Number:	
Organization Requesting Data (Recipient):	Connecticut Hospital Association (CHA)
Organization Website:	www.cthosp.org
Authorized Signatory for Organization:	Anthony Dias
Title:	VP, Data Services
E-Mail Address:	dias@chime.org
Address, City/Town, State, Zip Code:	110 Barnes Rd, Wallingford, CT 06492
Data Custodian: (individual responsible for organizing, storing, and archiving Data)	Gordon Otake
Title:	Director, Information Systems
E-Mail Address:	otake@chime.org
Telephone Number:	203-294-7298
Address, City/Town, State, Zip Code:	110 Barnes Rd, Wallingford, CT 06492
Primary Investigator: (individual responsible for the research team using the Data)	Anthony Dias
Title:	VP, Data Services
E-Mail Address:	dias@chime.org
Telephone Number:	203-294-7317
Names of Co-Investigators:	Mary Lyon
E-Mail Addresses of Co-Investigators:	lyon@chime.org

IV. PROJECT INFORMATION

1. What will be the use of the CHIA Data requested? [Check all that apply]

- | | | |
|--|---|--|
| <input type="checkbox"/> Epidemiological | <input checked="" type="checkbox"/> Health planning/resource allocation | <input type="checkbox"/> Cost trends |
| <input type="checkbox"/> Longitudinal Research | <input checked="" type="checkbox"/> Quality of care assessment | <input type="checkbox"/> Rate setting |
| <input checked="" type="checkbox"/> Reference tool | <input type="checkbox"/> Research studies | <input type="checkbox"/> Severity index tool |
| <input type="checkbox"/> Surveillance | <input type="checkbox"/> Student research | <input type="checkbox"/> Utilization review of resources |
| <input checked="" type="checkbox"/> Inclusion in a product | <input checked="" type="checkbox"/> Other (describe in box below) | |

For CHA hospital members to:

- compare their inpatient, ED, and outpatient observation utilization and quality performance with Massachusetts hospitals,
- determine inpatient, ED, and outpatient observation market share and evaluate in-migration and out-migration trends to support their healthcare business operations and planning activities.

2. Provide an abstract or brief summary of the specific purpose and objectives of your Project. This description should include the research questions and/or hypotheses the project will attempt to address, or describe the intended product or report that will be derived from the requested data and how this product will be used. Include a brief summary of the pertinent literature with citations, if applicable.

CHA, through its ChimeData program, provides data products and services to help its hospital members to gauge their performance in quality improvement and patient safety, evaluate population health, track and trend the utilization of key

hospital services. The purpose of this project is to supplement the benchmarking, performance reporting, and analytics on market share, service lines, quality and patient safety, and community health and disparities.

3. Has an Institutional Review Board (IRB) reviewed your Project?

Yes [If yes, a copy of the approval letter and protocol must be included with the Application package on IRBNet.]

No, this Project is not human subject research and does not require IRB review.

4. **Research Methodology:** Applicants must provide either the IRB protocol or a written description of the Project methodology (typically 1-2 pages), which should state the Project objectives and/or identify relevant research questions. This document must be included with the Application package on IRBNet and must provide sufficient detail to allow CHIA to understand how the Data will be used to meet objectives or address research questions.

V. PUBLIC INTEREST

1. Briefly explain why completing your Project is in the public interest. Use quantitative indicators of public health importance where possible, for example, numbers of deaths or incident cases; age-adjusted, age-specific, or crude rates; or years of potential life lost. *Uses that serve the public interest under CHIA regulations include, but are not limited to: health cost and utilization analysis to formulate public policy; studies that promote improvement in population health, health care quality or access; and health planning tied to evaluation or improvement of Massachusetts state government initiatives.*

The requested data will be incorporated in ChimeData products to support CHA hospital members in their efforts in improving quality and patient safety, and population and community health and reducing disparities. Since Connecticut hospitals treat Massachusetts residents and vice versa, it is important for Connecticut hospitals to compare their performance with Massachusetts hospitals.

VI. DATASETS REQUESTED

The Massachusetts Case Mix and Charge Data are comprised of Hospital Inpatient Discharge, Emergency Department and Outpatient Hospital Observation Stay Data collected from Massachusetts' acute care hospitals, and satellite emergency facilities. Case Mix and Charge Data are updated each fiscal year (October 1 – September 30) and made available to approved data users. For more information about Case Mix and Charge Data, including a full list of available elements in the datasets please refer to release layouts, data dictionaries and similar documentation included on [CHIA's website](#).

Data requests are typically fulfilled on a one time basis, however; certain Projects may require years of data not yet available. Applicants who anticipate a need for future years of data may request to be considered for a subscription. Approved subscriptions will receive, upon request, the same data files and data elements included in the initial release annually or as available. Please note that approved subscription request will be subject to the Data Use Agreement, will require payment of fees for additional Data, and subject to the limitation that the Data can be used only in support of the approved Project.

1. Please indicate below whether this is a one-time request, or if the described Project will require a subscription.

One-Time Request OR Subscription

2. Specify below the dataset(s) and year(s) of data requested for this Project, and your justification for requesting each dataset. Data prior to 2004 is not available.

<input checked="" type="checkbox"/> Hospital Inpatient Discharge Data <input type="checkbox"/> 2004 <input type="checkbox"/> 2005 <input type="checkbox"/> 2006 <input type="checkbox"/> 2007 <input type="checkbox"/> 2008 <input type="checkbox"/> 2009 <input type="checkbox"/> 2010 <input type="checkbox"/> 2011 <input type="checkbox"/> 2012 <input type="checkbox"/> 2013 <input type="checkbox"/> 2014 <input type="checkbox"/> 2015 <input type="checkbox"/> 2016 <input checked="" type="checkbox"/> 2017
Describe how your research objectives require Inpatient Discharge data: Inpatient discharge data will be used for CHA hospital members to compare their inpatient utilization and quality performance MA hospitals and determine inpatient market share as part of their healthcare operations and planning.
<input checked="" type="checkbox"/> Outpatient Hospital Observation Stay Data <input type="checkbox"/> 2004 <input type="checkbox"/> 2005 <input type="checkbox"/> 2006 <input type="checkbox"/> 2007 <input type="checkbox"/> 2008 <input type="checkbox"/> 2009 <input type="checkbox"/> 2010 <input type="checkbox"/> 2011 <input type="checkbox"/> 2012 <input type="checkbox"/> 2013 <input type="checkbox"/> 2014 <input type="checkbox"/> 2015 <input type="checkbox"/> 2016 <input checked="" type="checkbox"/> 2017
Describe how your research objectives require Outpatient Hospital Observation Stay data: Outpatient observation discharge data will be used for CHA hospital members to compare their outpatient observation utilization and quality performance MA hospitals and determine inpatient market share as part of their healthcare operations and planning.
<input checked="" type="checkbox"/> Emergency Department Data <input type="checkbox"/> 2004 <input type="checkbox"/> 2005 <input type="checkbox"/> 2006 <input type="checkbox"/> 2007 <input type="checkbox"/> 2008 <input type="checkbox"/> 2009 <input type="checkbox"/> 2010 <input type="checkbox"/> 2011 <input type="checkbox"/> 2012 <input type="checkbox"/> 2013 <input type="checkbox"/> 2014 <input type="checkbox"/> 2015 <input type="checkbox"/> 2016 <input checked="" type="checkbox"/> 2017
Describe how your research objectives require Outpatient Hospital Observation Stay data: Emergency department (ED) data will be used for CHA hospital members to compare their emergency department utilization and quality performance MA hospitals and determine ED market share as part of their healthcare operations and planning.

VII. DATA ENHANCEMENTS REQUESTED

State and federal privacy laws limit the release and use of Data to the minimum amount of data needed to accomplish a specific Project objective.

Case Mix and Charge Data are grouped into six “Levels” or Limited Data Sets (LDS) for release, depending on the fiscal year. Data for FY 2004 – 2014 are organized into Levels. Level 6 Data will be released to Government Applicants only. CHIA staff will use the information provided in this section to determine the appropriate Level of Data justified for release.

Data for FY 2015 and later are organized into LDS’s. All applicants receive the “Core” LDS, but may also request the data enhancements listed below for inclusion in their analyses. Requests for enhancements will be reviewed by CHIA to determine whether each represents the minimum data necessary to complete the specific Project objective.

For a full list of elements in the release (i.e., the “Core” elements and enhancements), please refer to [release layouts, data dictionaries](#) and similar documentation included on CHIA’s website.

1. Specify below which enhancements you are requesting in addition to the “Core” LDS. CHIA will use this information to determine what Level of data is needed for pre-FY 2015 data requests.

Geographic Subdivisions

State, five-digit zip code, and 3-digit code are available for patients residing in CT, MA, ME, NH, RI, VT, and NY. City or Town of residence is available for residents of MA only. States outside of this region will be coded as XX (“Other”).

Select one of the following options:

<input type="checkbox"/> 3-Digit Zip Code (Standard)	<input type="checkbox"/> 3-Digit Zip Code & City/Town ***	<input type="checkbox"/> 5-Digit Zip Code ***	<input checked="" type="checkbox"/> 5-Digit Zip Code & City/Town ***
***If requested, provide justification for requesting 5-Digit Zip Code or City/Town. Refer to specifics in your methodology: CHA hospital members will use the 5-digit zip code and city/town to evaluate and quantify in-migration, out-migration, and market share since hospital service areas are defined at the 5-digit zip code and city/town level. Utilization rates per 1,000			

population at the 5-digit zip code and city/town level is also used by CHA hospital members to compare utilization across communities.

Demographic Data

Select one of the following options:

<input type="checkbox"/> Not Requested (Standard)	<input checked="" type="checkbox"/> Race & Ethnicity***
<p>** If requested, provide justification for requesting Race and Ethnicity. Refer to specifics in your methodology: CHA hospital members will use race and ethnicity to evaluate community health and disparities. The utilization data will be segmented by race and ethnicity, comparing their performance with MA hospitals' performance and identify opportunities in reducing disparities.</p>	

Date Resolution

Select one of the following options for dates of admissions, discharges, and significant procedures.

<input type="checkbox"/> Year (YYYY)(Standard)	<input checked="" type="checkbox"/> Month (YYYYMM) ***	<input type="checkbox"/> Day (YYYYMMDD)***
<p>***If requested, provide justification for requesting Month or Day. Refer to specifics in your methodology: CHA hospital members will use month/year to compare their monthly trends in performance with MA hospitals' monthly trends to identify whether there are patterns in seasonality that may help identify opportunities for improvement.</p>		

Practioner Identifiers (UPN)

Select one of the following options.

<input checked="" type="checkbox"/> Not Requested (Standard)	<input type="checkbox"/> Hashed ID ***	<input type="checkbox"/> Board of Registration in Medicine Number(BORIM) ***
<p>***If requested, provide justification for requesting Hashed ID or BORIM Number. Refer to specifics in your methodology:</p>		

Unique Health Information Number (UHIN)

Select one of the following options.

<input type="checkbox"/> Not Requested (Standard)	<input checked="" type="checkbox"/> UHIN Requested ***
<p>*** If requested, provide justification for requesting UHIN. Refer to specifics in your methodology: CHA will apply the UHIN to derive measures of 30-day unplanned readmissions and frequent ED visitors, as part of the key measures used by CHA hospital members for quality improvement and population health.</p>	

Hashed Mother's Social Security Number

Select one of the following options:

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

VIII. DATA LINKAGE

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

1. Do you intend to link or merge CHIA Data to other data?

- Yes
 No linkage or merger with any other data will occur

2. If yes, please indicate below the types of data to which CHIA Data will 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 (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, indicate which CHIA Data elements will be linked and the purpose for each linkage.

- Individual Facility Level Data: For CHA hospital members to compare with peer group hospitals in MA, based on hospital attributes from AHA hospital data.
- Aggregate Census Data: For CHA hospital members to compare utilization based on utilization rates per 1,000 population.

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.

- Individual Facility Level Data: The Medicare Provider ID will be used for deterministic linking to the AHA hospital reference file, if the Medicare Provider ID available from CHIA. If not, the hospital name will be used for deterministic linking to the AHA hospital reference file.
- Aggregate Census Data: The 5-digit zip code will be used for deterministic linking to the American Community Survey (ACS) data.

5. If yes, attach complete listing of the variables from all sources to be included in the final linked analytic file.

Filename: "Attachment- Hospital and ACS Variables.docx"

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

Cell size restrictions will be applied to the CHIA data so that cell sizes under 11 will be suppressed and the results will not be displayed.

IX. PUBLICATION / DISSEMINATION / RE-RELEASE

1. Do you anticipate that the results of your analysis will be published or made publicly available? If so, how do you intend to disseminate the results of the study (e.g.; publication in professional journal, poster presentation, newsletter, web page, seminar, conference, statistical tabulation)? Any and 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 disclose a cell less than 11**, and percentages or other mathematical formulas that result in the display of a cell less than 11.

No, the results will not be made publicly available. Aggregate results may be published in CHA materials to its hospital members only and no cell sizes under 11 will be disclosed because the ChimeData product from which the aggregate results are pulled from will suppress the display of cell sizes under 11.

2. Describe your plans to use or otherwise disclose CHIA Data, or any data derived or extracted from such data, in any paper, report, website, statistical tabulation, seminar, or other setting that is not disseminated to the public.

Aggregate results will be available to CHA hospital members in the ChimeData products and CHA materials. No record level CHIA data will be available in the ChimeData products.

3. What will be the lowest geographical level of analysis of data you expect to present for publication or presentation (e.g., state level, city/town level, zip code level, etc.)? Will maps be presented? If so, what methods will be used to ensure that individuals cannot be identified?

The lowest geographical level of analysis will be at the 5-digit zip code and city/town level, and cell size restrictions will be applied to the CHIA data so that cell sizes under 26 will be suppressed and the results will not be displayed.

4. Will you be using CHIA Data for consulting purposes?

- Yes
 No

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

- Yes
 No

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

- Yes
 No

7. Will you be using CHIA Data as in input to develop a product (i.e., severity index tool, risk adjustment tool, reference tool, etc.)

- Yes
 No

8. Will you be reselling CHIA Data in any format not noted above?

- Yes
 No

If yes, in what format will you be reselling CHIA Data?

9. If you have answered "yes" to questions 5, 6, 7 or 8, provide the name and a description of the products, software, services, or tools.

10. If you have answered "yes" to questions 5, 6, 7 or 8, what is the fee you will charge for such products, software, services or tools?

XI. INVESTIGATOR QUALIFICATIONS

1. Describe your previous experience using hospital data. This question should be answered by the primary investigator and any co-investigators who will be using the Data.

CHA, through its ChimeData program, has been collecting, processing, and analyzing hospital data since 1980. The primary investigator, Anthony Dias, MBBS, DPM, MPH, is Vice President, Data Services, CHA. In this role, Dr. Dias provides insight and support for CHA advocacy and initiatives in quality and patient safety, regulatory and reimbursement issues, community health and disparities, and use of data to drive clinical performance. He directs CHA's Data Services team, overseeing ChimeData, the most comprehensive hospital database in the state, containing more than 60 million hospital patient encounters dating back to 1980. Dr. Dias has a wealth of data analytics experience with a focus on knowledge transformation and improving patient safety and quality, and reducing costs. Prior to joining CHA, he was Managing Director, Innovation & Research at Blue Health Intelligence (BHI), having previously served in that role at the Blue Cross Blue Shield Association. Prior to BHI, Dr. Dias worked at Blue Cross and Blue Shield of Massachusetts, where he focused on integrating performance reporting, operational improvement opportunities to mitigate cost, and quality initiatives in behavioral health. Dr. Dias has directed operational management at a community health center, consulted for mental health initiatives, and worked as a psychiatric crisis clinician. He has prior experience in India as a clinic founder and general practitioner physician. Currently, Dr. Dias also serves as an appointed Director of the Harvard HAA Board and the Past President of the Harvard School of Public Health Alumni Association. Dr. Dias received his MPH in Policy and Management from the Harvard School of Public Health, and completed a post-doctoral fellowship at Harvard University Health Services. He completed his medical school training at Goa Medical College & Hospital, and a psychiatry residency in Goa, India.

The co-investigator, Mary Lyon, is Vice President, Integrated Health Information, CHA. In this role, Mary has been responsible with supporting CHA hospital members in data submission, error correction, data completion, and quality assurance for the hospital discharge data in ChimeData. Mary has been with CHA and working with hospitals on a day-to-day basis since 1990. With nearly 29 years of experience, working operationally on data submission, data quality, and data completion issues, she has a wealth of knowledge to support the development of a streamlined, efficient, and comprehensive solution for this project. Mary has demonstrated knowledge and experience with ANSI ASC X12N 837 electronic file standard, the UB-04 Data Specifications, ICD-9, and ICD-10. Mary directed the ICD-10 implementation, providing monthly education webinars to CHA hospital members to ensure a smooth transition and implementation of ICD-10 in the hospital discharge database. Mary also has extensive experience with the value and use of enriched data fields such as MS-DRGs, and Clinical Classification System for diagnoses and procedures. Mary is responsible for the technical development of analytics that leverage meaningful data and visualizations for the purposes of performance reporting, trending, comparisons, utilization tracking, and benchmarks.

2. **Resumes/CVs:** When submitting your Application package on IRBNet, include résumés or curricula vitae of the principal investigator and co-investigators. (These attachments will not be posted on the internet.)

XII. USE OF AGENTS AND/OR CONTRACTORS

By signing this Application, the Agency assumes all responsibility for the use, security and maintenance of the CHIA Data by its agents, including but not limited to contractors. The Agency must have a written agreement with the agent of contractor limiting the use of CHIA Data to the use approved under this Application as well as the privacy and security standards set forth in the Data Use Agreement. CHIA Data may not be shared with any third party without prior written consent from CHIA, or an amendment to this Application. CHIA may audit any entity with access to CHIA Data.

Provide the following information for all agents and contractors who will work with the CHIA Data. *[Add agents or contractors as needed.]*

AGENT/CONTRACTOR #1 INFORMATION	
Company Name:	
Company Website:	
Contact Person:	
Title:	
E-mail Address:	
Address, City/Town, State, Zip Code	
Telephone Number:	
Term of Contract:	

1. Describe the tasks and products assigned to the agent or contractor for this Project and their qualifications for completing the tasks.

2. Describe the Organization’s oversight and monitoring of the activities and actions of the agent or contractor for this Project, including how the Organization will ensure the security of the CHIA Data to which the agent or contractor has access.

3. Will the agent or contractor have access to or store the CHIA Data at a location other than the Organization's location, off-site server and/or database?

- Yes
 No

4. If yes, a separate Data Management Plan **must** be completed by the agent or contractor.

AGENT/CONTRACTOR #2 INFORMATION	
Company Name:	
Company Website:	
Contact Person:	
Title:	
E-mail Address:	
Address, City/Town, Zip Code	
Telephone Number:	
Term of Contract:	

1. Describe the tasks and products assigned to the agent or contractor for this Project and their qualifications for completing the tasks.

2. Describe the Organization's oversight and monitoring of the activities and actions of the agent or contractor for this Project, including how the Organization will ensure the security of the CHIA Data to which the agent or contractor has access.

3. Will the agent or contractor have access to or store the CHIA Data at a location other than the Organization's location, off-site server and/or database?

- Yes

No

4. If yes, a separate Data Management Plan **must** be completed by the agent or contractor.

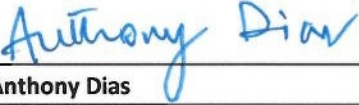
[INSERT A NEW SECTION FOR ADDITIONAL AGENTS/CONTRACTORS AS NEEDED]

XIII. ATTESTATION

By submitting this Application, the Organization attests that it is aware of its data use, privacy and security obligations imposed by state and federal law *and* confirms that it is compliant with such use, privacy and security standards. The Organization further agrees and understands that it is solely responsible for any breaches or unauthorized access, disclosure or use of CHIA Data including, but not limited to, any breach or unauthorized access, disclosure or use by any third party to which it grants access.

Applicants approved to receive CHIA Data will be provided with Data following the payment of applicable fees and upon the execution of a Data Use Agreement requiring the Organization to adhere to processes and procedures designed to prevent unauthorized access, disclosure or use of data.

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

Signature: (Authorized Signatory for Organization)	
Printed Name :	Anthony Dias
Title:	VP, Data Services

Attachments

A completed Application must have the following documents attached to the Application or uploaded separately to IRBNet:

- 1. IRB approval letter and protocol (if applicable), or research methodology (if protocol is not attached)
- 2. Data Management Plan (including one for each agent or contractor that will have access to or store the CHIA Data at a location other than the Organization's location, off-site server and/or database)
- 3. CVs of Investigators (upload to IRBnet)

APPLICATIONS WILL NOT BE REVIEWED UNTIL THEY ARE COMPLETE, INCLUDING ALL ATTACHMENTS.

[INSERT IRB approval letter and protocol, or research methodology]

CHA will apply the following methodologies:

- **Quality indicators, patient safety indicators, prevention quality indicators using AHRQ QI software.**
- **30-day unplanned readmissions methodologies as defined by CMS.**
- **Frequent ED visitors based on the same UHIN for six or more ED encounters within a six-month period.**

Hospital Variables

Hospital Variable Name	Description
Medicare Provider ID	Hospital Medicare Provider ID
Hospital Name	Hospital name
Hospital Address	Hospital main street address
Hospital City	Hospital city
Hospital State	Hospital state
Hospital Zip Code	Hospital zip code
Bed Size	Hospital bed size
Ownership	Hospital ownership
Teaching Status	Hospital teaching status

American Community Survey (ACS) Variables

ACS Variable Name	Description
Pop < 5 Yrs	Total number of all people 4-years or less.
% Pop <5 Yrs	Percent of all people 4-years or less.
Pop 5 – 17 Yrs	Total number of all people between 5 and 17 years.
% Pop 5 – 17 Yrs	Percent of all people between 5 and 17 years.
Pop 18 – 21 Yrs	Total number of all people between 18 and 21 years.
% Pop 18 – 21 Yrs	Percent of all people between 18 and 21 years.
Pop 22 – 29 Yrs	Total number of all people between 22 and 29 years.
% Pop 22 – 29 Yrs	Percent of all people between 22 and 29 years.
Pop 30 – 39 Yrs	Total number of all people between 30 and 39 years.
% Pop 30 – 39 Yrs	Percent of all people between 30 and 39 years.
Pop 40 – 49 Yrs	Total number of all people between 40 and 49 years.
% Pop 40 – 49 Yrs	Percent of all people between 40 and 49 years.
Pop 50 – 64 Yrs	Total number of all people between 50 and 64 years.
% Pop 50 – 64 Yrs	Percent of all people between 50 and 64 years.
Pop > 64 Yrs	Total number of all people who are 65-years or older.
% Pop > 64 Yrs	Percent of all people who are 65-years or older.
Median Age	Median age divides the age distribution of the population into two equal parts: one-half of persons falling below the median value and one-half above the value. Median age is computed on the basis of a single year of age distribution.
Median Age – M	Median age for males.
Median Age – F	Median age for females.
w/Diploma	Total number of people aged 25 or older with at least a high school degree.
% w/Diploma	Percent of the population aged 25 or older with at least a high school degree.
w/BA	Total number of people aged 25 or older with at least a bachelor's degree.

ACS Variable Name	Description
% w/BA	Percent of the population aged 25 or older with at least a bachelor's degree.
HHs	Total number of households. A household includes all of the people who occupy a housing unit. Group quarters – such as nursing homes, prisons, and dorms – are not considered households.
Avg HH Size	Total number of people living in households divided by the total number of households (rounded to the nearest hundredth).
M-Head HHs	Total number of male-headed households (includes a family with no wife present).
% M-Head HHs	Percent of households that were male-headed.
F-Head HHs	Total number of female-headed households (includes a family with no husband present).
% F-Head HHs	Percent of households that were female-headed.
M-Head HHs w/ Child	Total number of male-headed households with at least one related child. Children are considered related by birth, marriage, or adoption.
% M-Head HHs w/ Child	Percent of households that were male-headed with children.
F-Head HHs w/ Child	Total number of female-headed households with at least one related child. Children are considered related by birth, marriage, or adoption.
% F-Head HHs w/ Child	Percent of households that were female-headed with children.
Families	Total number of families. A family includes a householder and one or more other people living in the same household who are related to the householder by birth, marriage, or adoption. All people in a household who are related to the householder are regarded as members of the householder's family. A family household may contain people not related to the householder, but those people are not included in family-specific tabulations.
Housing Units	Total number of housing units. A housing unit may be a house, an apartment, a mobile home, a group of rooms or a single room that is occupied (or, if vacant, intended for occupancy) as separate living quarters. Separate living quarters are those in which the occupants live separately from any other individuals in the building and which have direct access from outside the building or through a common hall.
Vacant Housing	Total number of housing units that are vacant. A housing unit is classified as vacant if no one is living in the unit at the time of enumeration, unless its occupants are only temporarily absent. Seasonally-occupied housing units are considered vacant by the ACS.
% Vacant Housing	Percent of all housing units classified as vacant.
Own-Occupied Housing	Total number of occupied housing units classified as owner occupied. A housing unit is owner occupied if the owner or co-owner lives in the unit regardless of the housing unit's mortgage status.
% Own-Occupied Housing	Percent of all occupied housing units classified as owner occupied.
Rent-Occupied Housing	Total number of occupied housing units that were renter occupied, including housing units rented for cash or occupied without payment of cash rent.
% Rent-Occupied Housing	Percent of all occupied housing units classified as renter occupied.

ACS Variable Name	Description
% Rent Burdened Households	Percentage of renter households spending more than 30% of gross income on rent.
% Housing Cost Burdened Owner Households	The percentage of owner households spending more than 30% of gross income on housing costs.
% Housing Cost Burdened Households	The percentage of all households spending more than 30% of gross income on housing costs.
% Low-Income Rent Burdened Households	The percentage of renter households earning less than \$35k spending more than 30% of gross income on rent.
% Housing Cost Burdened Low-Income Owner Households	The percentage of owner households earning less than \$35k spending more than 30% of gross income on housing costs.
% Housing Cost Burdened Low-Income Households	The percentage of all households earning less than \$35k spending more than 30% of gross income on housing costs.
Total Pop	Total population count.
Male	Total number of people who classify their sex as male.
% Male	Percent of all people classified as male.
Female	Total number of people who classify their sex as female.
% Female	Percent of all people classified as female.
% Pop by language spoken at home - English only	The percentage of the population age 5+ that only speak English.
% Pop by language spoken at home - Spanish	The percentage of the population age 5+ that speak Spanish.
% Pop by language spoken at home - other Indo-European languages	The percentage of the population age 5+ that speak another Indo-European language (excluding Spanish).
% Pop by language spoken at home - Asian and Pacific Island languages	The percentage of the population age 5+ that speak an Asian or Pacific Island language.
% Pop by language spoken at home - other	The percentage of the population age 5+ that speak other languages (excluding Indo-European, Asian, and Pacific Island languages).
White	Total number of people who identify as non-Hispanic white.
% White	Percent of all people who identify as non-Hispanic white.
Non-White	Total number of people who do not identify as non-Hispanic white.
% Non-White	Percent of all people who do not identify as non-Hispanic white.
Black	Total number of people who identify as non-Hispanic black.
% Black	Percent of all people who identify as non-Hispanic black.
Asian	Total number of people who identify as non-Hispanic Asian.
% Asian	Percent of all people who identify as non-Hispanic Asian.
Other	Total number of people who identify as non-Hispanic and either American Indian or Alaska Native, Native Hawaiian or Other Pacific Islander, some other race, or two or more races.
% Other	Percent of all people who identify as non-Hispanic and either American Indian or Alaska Native, Native Hawaiian or Other Pacific Islander, some other race, or two or more races.

ACS Variable Name	Description
Latino	Total number of people who identify as Spanish, Hispanic, or Latino (and identify as any race).
% Latino	Percent of all people who identify as Spanish, Hispanic, or Latino.
HHs > \$150K	Total number of households earning more than \$150,000 in the previous 12 months. Household income includes pre-tax income for all individuals in a household.
% HHs > \$150K	Percent of households earning more than \$150,000 in the previous 12 months. Household income includes pre-tax income for all individuals in a household.
Med HH Inc (\$)	Household income includes pre-tax income for all individuals in a household over the past 12 months. The median divides households into two equal parts: one-half of the cases falling below the median income and one-half above the median.
Below Poverty	Total number of people below the federal poverty threshold. The poverty threshold is adjusted for family size but not for geography or cost of living.
% Below Poverty	Percent of the population below the federal poverty threshold. The poverty threshold is adjusted for family size but not for geography or cost of living.
Homes > \$ 1 Mill	Number of owner-occupied housing units with a (self-reported) home value of more than \$1 million.
% Homes > \$ 1 Mill	Percent of all owner-occupied housing units with a (self-reported) home value of more than \$1 million.
% HHs with no vehicle available	Percent of households with no vehicle available.
% Internet	Percent of households with an Internet subscription
% Internet – High Speed	Percent of households with a broadband Internet subscription.
No or Limited Internet Access	Fewer than 10% of all households have internet.



ChimeData Overview

CHIME, Inc., an affiliate of Connecticut Hospital Association, provides member hospitals with benchmarking, performance reporting, and analytics on market share, service lines, physician performance, quality and patient safety, and population health including community health and disparities through data analytic products.

Through ChimeData, CHA collects, enriches, stores, and analyzes administrative claims data from inpatient admissions, hospital-based ambulatory surgeries, outpatient observation encounters, emergency department (ED) non-admissions, and hospital outpatient services. The core ChimeData performance reporting and benchmarking suite provides comprehensive and interactive analysis of physician performance and quality through dashboards, national and regional benchmarks, and analytics, including physician profiles and performance, quality analytics, and GIS mapping. The Advanced Analytic Suite includes predictive modeling solutions for HAC/PSI, readmissions, and PACs/PEDVs.

Data Analytic Products

CHA provides Connecticut member hospitals with innovative data products and advanced analytic solutions embedded with predictive models.

ChimeData Dashboard: This product enables hospitals to track performance with state benchmarks and hospital comparisons in the areas of utilization, population health, and quality and patient safety. It incorporates key metrics from all of the Core ChimeData Suite and Advanced Analytic Suite products, and provides the ability to drill down for additional detail.

ChimeData Executive Summary: This two-page written summary provides hospitals with an overview of their performance on key indicators in the areas of utilization, population health, and quality and patient safety.

Patient Census: The Patient Census monthly interactive reports are used by hospitals to monitor and compare utilization within and across institutions. Hospitals can view monthly trends and year-over-year changes for all inpatient service lines and outpatient categories, as well as identify changes in payer mix, DRGs, and towns. Specifically, the report provides utilization data for 13 DRG-based inpatient hospital service lines and 33 outpatient categories based on CPT and UB revenue codes.

Decision Support: This on-demand analytics tool provides hospitals the ability to analyze utilization trends and compare themselves to other hospitals. It allows end-user flexibility and offers multiple data dimensions and measures, with drill-down and summarization capabilities that allow users to perform various levels of detailed analyses.

ChimeMaps: ChimeMaps uses advanced mapping techniques to provide analytic insights based on hospital, health, and population data. ChimeMaps helps hospitals plan service line expansions by enabling them to identify those in need of particular medical services and identify where they live. It also provides hospitals insight into how they perform in their markets in key service areas, how they compare to others, and how their markets are changing. Hospitals also use ChimeMaps as their primary tool in conducting Community Health Needs Assessments, as it provides timely, relevant data that illustrates the true burden of health issues in the community, empowering hospitals to target health outreach and interventions that result in reduced avoidable

readmissions and a measurable improvement in community health.

Hospital Quality and Physician Performance: This product allows hospitals to monitor hospital quality and examine physician performance (Joint Commission Ongoing Practitioner Performance Evaluation (OPPE) reporting) to determine areas for improvement. Hospitals use the interactive and advanced on-demand analytics to measure physician performance based on a number of different indicators including resource use and quality indicators. They can also track hospital quality performance on various patient safety indicators, readmission rates, utilization, and mortality rates, and compare performance to other hospitals.

Community Health Profile: This product supports hospitals in their community health needs assessments. It summarizes demographic and socioeconomic characteristics, as well as hospital utilization, for a defined service area. It provides users with the ability to run a standard report, using their hospital's pre-defined service area definition, or to create a custom report by specifying zip codes and dates to include. Users also gain access to on-demand analytics functionality for further drill-down and evaluation of specific populations or geographic subsets of interest.

Healthcare Acquired Conditions/Patient Safety Indicators (HAC/PSI) Analytic Solution: This interactive and easy-to-use analytic solution provides critical intelligence about a hospital's performance related to HACs and PSIs. It helps hospitals identify factors contributing to HAC/PSIs, track and trend performance and rates, and predict each hospital's financial impact of reducing HAC/PSIs. Hospitals can compare performance to state benchmarks and drill down to a granular case list level.

Readmissions Solution: This analytic solution provides hospitals with the data insight needed for prioritizing certain readmission categories. Hospitals can view their readmission rates, as well as compare to other hospitals and the statewide benchmark. The Readmissions Solution identifies the top reasons for readmissions, provides the ability to drill down by case list or to the physician level for their patients only, and enables hospitals to distinguish readmission patterns across hospitals.

Potentially Avoidable Complications (PAC)/Potentially Preventable ED Visits Solution: This analytic solution provides key insights into the ways hospitals can improve quality and patient safety while reducing avoidable costs. Hospitals can see where PACs are occurring at their hospital, focus on more than 90 clinical indicators, and evaluate the patterns and trends of their PACs, along with the associated avoidable costs. In addition, the module provides key physician-level comparisons and state benchmarks to prioritize system-wide health interventions. With the Preventable ED Visits module, hospitals can evaluate patient utilization within their EDs to identify preventable patient encounters and see trends of preventable ED visits and associated avoidable costs by service line or condition. It provides hospitals the ability to identify areas of actionable opportunity based on their performance.

Risk Scoring and Stratification: This analytic solution allows hospitals to access and evaluate patient risk scores and compare groups of patient to the state. All available hospital data, from any facility visited by the patient, is used to assign a comprehensive patient level risk score that helps predict future resource consumption and future healthcare cost. Three risk scoring methodologies included are: LACE, Charlson Comorbidity Index, and Hierarchical Condition Categories.

The Partnership for Patients Quality Summary: The comprehensive monthly report, which includes state benchmarks, tracks hospital performance on the CMS-designated measures used for the Partnership for Patients initiative. The data include the CMS Hospital Acquired Conditions (HAC), the Agency for Healthcare Research and Quality (AHRQ) Quality Indicators, readmission measures based on hospitals' administrative data as reported via ChimeData, and the National Healthcare Safety Network (NHSN) measures from the Centers for Disease Control and Prevention (CDC).

Use of Massachusetts CHIA Data in CHIME Products

CHIME, Inc., an affiliate of Connecticut Hospital Association, provides member hospitals with benchmarking, performance reporting, and analytics on market share, service lines, physician performance, quality and patient safety, and population health including community health and disparities through data analytic products.

CHIME products focused on utilization, quality and patient safety, and population health that can be found at www.chimedata.org. Across all products, CHIME will incorporate the CHIA data as follows:

- In its on-demand analytics tool to provide member hospitals the ability to analyze aggregate utilization trends and compare themselves to other hospitals. It allows end-user flexibility and offers multiple data dimensions and measures, with drill-down and summarization capabilities that allow users to perform various levels of analyses. Specific utilization measures include number of encounters, days, average length of stay, average charges, and case mix index. Cell sizes of 11 or more will be displayed. Otherwise, the cell will include a special notation that describes that the cell size is 10 or under.
- CHIME will apply the AHRQ Quality Indicators (QI) software to the Massachusetts CHIA data to calculate the overall Massachusetts statewide rates for the purpose of comparison and benchmark for Connecticut hospitals. The rates for the AHRQ quality indicators (QIs), prevention quality indicators (PQIs), and patient safety indicators (PSIs) will be displayed only. There will be no numerator or denominator data shown. Rates with cell sizes of 11 or more will be displayed. Otherwise the cell will include a special notation that describes that the cell size is 10 or under.
- Provide capability for users to perform ad-hoc analysis with the ability to choose certain utilization measures and identify outmigration of Connecticut residents that were treated in Massachusetts hospitals. The utilization measures would be segmented by geo-zip (designated as the first three digits of the zip code) for encounters at Massachusetts hospitals and five-digit zip code for encounters at Connecticut hospitals. The utilization measures include: number of encounters, days, average length of stay, case mix index, and total charges.
- Using market share maps that can be expanded to neighboring states, CHIME will incorporate CHIA data to create the following:
 - A new geography type made up of three-digit zips – geo-zips – would be available alongside the current geography options (Zip Code, Town, County). Currently, CHIME only shows market share for Connecticut geographies, but the maps can be extended into bordering states if data is made available.
 - Total encounter maps for out-of-state facilities can be viewed in CHIME
 - A Connecticut hospital would be able to view utilization for geo-zips in Connecticut for encounters from Massachusetts hospitals.
- Use CHIA data to support Connecticut hospitals in their preparation of Community Health Needs Assessments by analyzing the top health issues in 3 digit geographic areas and where those patients seek treatment. Provide a breakdown of services and health issues (such as chronic diseases, accidents and injuries, etc.) by age, gender, and payer and service type (inpatient, ED) and calculate utilization totals and averages. Create comparison to other adjacent states (e.g. CT and MA).
- Evaluate utilization data by DRG, diagnosis and procedure to understand the types of conditions being treated outside the state of Connecticut.
- Evaluate total utilization across adjacent states to understand which geographic areas in Connecticut are sources of patients for which Massachusetts hospitals.