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

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

**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.

## I. GENERAL INFORMATION

| APPLICANT INFORMATION | |
|---|---|
| Applicant Name: | David Bierschied |
| Title: | Director, Strategic Financial Planning |
| Organization: | UMass Memorial Healthcare Inc |
| Project Title: | FY14 Market Data |
| Mailing Address: | 306 Belmont St, Suite 120, Worcester, MA   01604 |
| Telephone Number: | 508-334-0463 |
| Email Address: | David.Bierschied@umassmemorial.org |
| Names of Co-Investigators: | Ian Copland; Thomas Jagling |
| Email Addresses of Co-Investigators: | Ian.Copland@umassmemorial .org<br>Thomas.Jagling@umassmemorial.org |
| Original Data Request Submission Date: | |
| Dates Data Request Revised: | |
| Project Objectives (240 character limit) | Provide de-identified data and analysis to UMass Memorial Healthcare internal service areas for the purposes of:  a) market share by service area  b) analysis by DRG, Diagnosis and Procedure categories. |
| Project Research Questions (if applicable) | 1.<br><br>2.<br><br>3. |

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

Provide de-identified data and analysis to UMass Memorial Healthcare internal service areas for the purposes of:  a) market share by service area  b) analysis by DRG, Diagnosis, and Procedure categories.

## III. FILES REQUESTED

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

| CASE MIX | Levels 1 – 6 | Fiscal Years Requested |
|---|---|---|
| **Inpatient Discharge** | ☐ Level 1 – No Identifiable Data Elements<br>X Level 2 – Unique Physician Number (UPN)<br>☐ Level 3 – Unique Health Information Number (UHIN)<br>☐ Level 4 – UHIN and UPN<br>☐ Level 5 – Date(s) of Admission; Discharge; Significant Procedures<br>☐ Level 6 – Date of Birth; Medical Record Number; Billing Number<br>**PLEASE PROVIDE JUSTIFICATION BELOW FOR REQUESTING THE CHOSEN LEVEL:** CHIA Data will be used in strategic planning and market analysis presentations to internal users of the Medical Center following CHIA data use protocols. Our request for case mix level 2 data is the need for the full five digit zip code which is needed to identify utilization at either our primary or secondary service areas. | <u>1998 – 2014 Available</u><br>(limited data 1989-1997)<br><br>2014 |
| **Outpatient Observation** | ☐ Level 1 – No Identifiable Data Elements<br>X Level 2 – Unique Physician Number (UPN)<br>☐ Level 3 – Unique Health Information Number (UHIN)<br>☐ Level 4 – UHIN and UPN<br>☐ Level 5 – Date(s) of Admission; Discharge; Significant Procedures<br>☐ Level 6 – Date of Birth; Medical Record Number; Billing Number<br>**PLEASE PROVIDE JUSTIFICATION BELOW FOR REQUESTING THE CHOSEN LEVEL:** CHIA Data will be used in strategic planning and market analysis presentations to internal users of the Medical Center following CHIA data use protocols. Our request for case mix level 2 data is the need for the full five digit zip code which is needed to identify utilization at either our primary or secondary service areas. | <u>2002 – 2014 Available</u><br><br>2014 |
| **Emergency Department** | ☐ Level 1 – No Identifiable Data Elements<br>X Level 2 – Unique Physician Number (UPN)<br>☐ Level 3 – Unique Health Information Number (UHIN)<br>☐ Level 4 – UHIN and UPN<br>☐ Level 5 – Date(s) of Admission; Discharge; Significant Procedures<br>☐ Level 6 – Date of Birth; Medical Record Number; Billing Number<br>**PLEASE PROVIDE JUSTIFICATION BELOW FOR REQUESTING THE CHOSEN LEVEL:** CHIA Data will be used in strategic planning and market analysis presentations to internal users of the Medical Center following CHIA data use protocols. Our request for case mix level 2 data is the need for the full five digit zip code which is needed to identify utilization at either our primary or secondary service areas. | <u>2000 – 2014 Available</u><br><br>2014 |

## IV. FEE INFORMATION

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

X      Single Use
☐      Limited Multiple Use
☐      Multiple Use

Are you requesting a fee waiver?

☐      Yes

X      No

If yes, please submit a letter stating the basis for your request. Please refer to the fee schedule for qualifications for receiving a fee waiver. If you are requesting a waiver based on the financial hardship provision, please provide documentation of your financial situation. Please note that non-profit status alone isn't sufficient to qualify for a fee waiver.

## V.  REQUESTS PURSUANT TO 957 CMR 5.04 (Researchers, Payers, Providers, and Provider Organizations)
**Please complete only if you are requesting Level 1 (de-identified) Case Mix.**
Please describe how you will use such data for the purposes of lowering total medical expenses, coordinating care, benchmarking, quality analysis or other administrative research purposes.

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

> Providing inpatient analytics to internal providers promotes programmatic investment in services increasing our community presence to deliver exceptional value (quality/cost) to the patients we serve.

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

   At the data record level we identify by zip code our primary and secondary service areas. DRGs are assigned to a Service Line. Hospitals are grouped within one of six categories dependent on affiliation and location. This allows us to report on market share by either the primary service area, secondary service area or combined service area at either the aggregate or service line level.

   Our request for case mix level 2 data is the need for the full five digit zip code. Without the full five digit zip code we will not be able to identify utilization at either our primary or secondary service areas. No reporting or analysis is done at the individual patient level.

3. Has your project received approval from your organization's Institutional Review Board (IRB)? Please note that CHIA will not review your application until IRB documentation has been received (if applicable).

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

   ☐  No, the IRB will review the project on _____.

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

   x   No, my organization does not have an IRB.

4.

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

> The two principal investigators have over 40 years of combined hospital Finance experience and have participated for many years in analysis directly related to this project. With this application we are adding a third co-investigator who has over 10 years of healthcare Finance related experience. The CHIA data will be used to provide inpatient analytics for internal use only.

2. Attach résumés or curricula vitae of the applicant/principal investigator, key contributors, and of all individuals who will have access to the data. (These attachments will not be posted on the internet.)

## VIII. DATA LINKAGE AND FURTHER DATA ABSTRACTION

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

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

    ☐    Yes

    x    No linkage or merger with any other database will occur

2. If yes, will the CHIA Data be linked or merged to other individual patient level data (e.g. disease registries, death data), individual provider level data (e.g., American Medical Association Physician Masterfile) , facility level (e.g., American Hospital Association data) or with aggregate data (e.g., Census data)? [check all that apply]

    ☐    Individual Patient Level Data

What is the purpose of the linkage:

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

    ☐    Individual Provider Level Data

What is the purpose of the linkage:

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

    ☐    Individual Facility Level Data

What is the purpose of the linkage:

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

___

☐    Aggregate Data

What is the purpose of the linkage:

___

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

___

3. If yes, for each proposed linkage above, please describe your method or selected algorithm (e.g., deterministic or probabilistic) for linking each dataset. If you intend to develop a unique algorithm, please describe how that algorithm will link each dataset.

___

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

___

5. If yes, and the data mentioned above is not in the public domain, please attach a letter of agreement or other appropriate documentation on restrictions of use from the data owner corroborating that they agree to have you initiate linkage of their data with CHIA data and include the data owner's website.

## IX. PUBLICATION / DISSEMINATION / RE-RELEASE

1. Describe your plans to publish or otherwise disclose CHIA Data, or any data derived or extracted from such data, in any paper, report, website, statistical tabulation, seminar, conference, or other setting.

CHIA Data will be used in strategic planning and market analysis presentations to internal users of the Medical Center following CHIA data use protocols.

2. Will the results of your analysis be publicly available to any interested party? Please describe how an interested party will obtain your analysis and, if applicable, the amount of the fee.

> The results of our analysis will not be publicly available.

3. Will you use the data for consulting purposes?
☐ Yes
x No

4. Will you be selling standard report products using the data?
☐ Yes
x No

5. Will you be selling a software product using the data?
☐ Yes
x No

6. Will you be reselling the data?
☐ Yes
x No

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

7. If you have answered "yes" to questions 3, 4 or 5, please describe the types of products, services or studies.

## X. USE OF AGENTS AND/OR CONTRACTORS

Third-Party Vendors. Provide the following information for all agents and contractors who will work with the CHIA Data.

| | |
|---|---|
| Company Name: | N/A: no agent or subcontractor |
| Contact Person: | |
| Title: | |
| Address: | |
| Telephone Number: | |
| E-mail Address: | |
| Organization Website: | |

8. Will the agent/contractor have access to the data at a location other than your location, your off-site server and/or your database?

☐   Yes

X   No

If yes, please provide information about the agent/contractor's data management practices, policies and procedures in your Data Management Plan.

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

N/A: no agent or subcontractor

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

N/A: no agent or subcontractor

11. Describe your oversight and monitoring of the activity and actions of this agent or subcontractor.
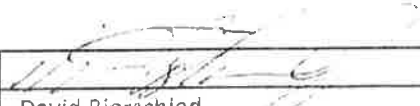
N/A: no agent or subcontractor

## XIII.  ASSURANCES

Applicants requesting and receiving data from CHIA pursuant to 957 CMR 5.00 ("Data Recipients") will be provided with data following the execution of a data use agreement that requires the Data Recipient to adhere to processes and procedures aimed at preventing unauthorized access, disclosure or use of data.

Data Recipients are further subject to the requirements and restrictions contained in applicable state and federal laws protecting privacy and data security, and will be required to adopt and implement policies and practices to protect CHIA data in a manner consistent with the requirements of the federal Health Insurance Portability and Accountability Act of 1996 (HIPAA).

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

**By my signature below, I attest to: (1) the accuracy of the information provided herein; (2) my organization's ability to meet CHIA's minimum data security requirements; and (3) my authority to bind the organization seeking CHIA data for the purposes described herein.**

| Signature: | |
|---|---|
| Printed Name: | David Bierschied |
| Original Application Submission Date: | 9.14  2015 |
| Dates Application Revised: | 11.6  2015 |

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UMass Memorial Healthcare Inc

CHIA Case Mix Data Application: Inpatient, Outpatient, Emergency

September, 2015

Section VI #2: Research Methodology

At the data record level we identify by zip code our four regions within our total service area. DRGs are assigned to a Service Line. This allows us to report on market share by region and in total service area at either the aggregate or service line level.

Our request for case mix level 2 data is the need for the full five digit zip code. Without the full five digit zip code we will not be able to identify utilization at our regional service areas. No reporting or analysis is done at the individual patient level.

## Service Areas Defined

1) Primary Service Area is traditionally defined as where 75% of our inpatients originate by zip code and can fluctuate year to year.
2) Secondary Service Area is the remaining 25% of our inpatient population defined by zip code.
3) The Combined Service Area is all towns within both the Primary Service Area and the Secondary Service Area.

## DRGs

Diagnostic Related Group (DRG) is a national patient classification system to identify utilization of services a patient receives based on the patient's diagnosis and procedures performed during their inpatient stay. An appropriate DRG is assigned based on ICD diagnoses, procedures, age, sex, discharge status, and the presence of complications or co-morbidities. The original 467 DRG codes were expanded to 999 codes into approximately 500 groups expected to have similar hospital resource use.

<u>Dx/Px Categories</u>

Patients receive a primary and possibly a multitude of secondary diagnosis codes (Dx) based on the ICD-9 system. Also, if they have a procedure during their inpatient stay, they will receive a procedure code (Px). The diagnosis and procedure codes roll up to a DRG and are used in the assignment of a DRG.

<u>Service Lines</u>

DRGs are categorized by UMass Memorial Healthcare into one of thirty-seven services lines based on a one to-many-relationship. The services lines we review are: Bone Marrow Transplant, Cardiac Catherization, Cardiac Surgery, Cardiology-Medicine, Maternity Deliveries, Diabetes & Endocrine, Electrophysiology, Endoscopy & GI, General Surgery, Gynecology-Oncology, Hematology-Oncology, Hospital Medicine, Joints, Nephrology, Neuro-Interventional, Neurology, Neurosurgery, Neonatal Intensive Care, OB/GYN, Ophthalmology, Orthopedics, Other Surgery, Otolaryngology, Plastics, Psychiatry, Pulmonary, Radiation Oncology, Rheumatology, Solid Organ Disorders, Spine, Surgical Oncology, Thoracic, Transplant, Trauma, Urology, Vascular, and Vent.

<u>Hospital Grouping</u>

We aggregate where a patient living within each regional service area receives inpatient services by these Hospital groups:

1) UMMMC – UMass Memorial Medical Center
2) Member – Clinton Hospital, HealthAlliance Hospital, Marlboro Hospital, Wing Memorial
3) Affiliate – Berkshire/Hillcrest, Harrington, Heywood, Holyoke, Milford Regional and Noble
4) St V's – Saint Vincent Hospital
5) Boston – hospitals located in Boston
6) Migration – all other hospitals

<u>Market Share</u>

Using the five digit zip code we identify patients receiving inpatient services within our service areas and group them by the six Hospital Groups listed above. For example, in FY12, there were a total of 114,956 discharges within our service areas. Of these, the Medical Center had 37,556 discharges or 32.7% market share (included in our prior submission was a sample PDF format file of our FY12 report Service Line Market Share Review, all services lines combined and a select few service lines). The report is based on these CHIA data elements contained within each patient record: five digit zip code, hospital, and DRG. All CHIA data is limited to the Market Share Review and will not be linked to other internal or external files nor reported at an individual patient level.

<u>Outpatient Observation and Emergency Department data</u>

The Outpatient Observation and Emergency Department data will be used in a manner consistent with our use of Inpatient data: identification of market share by Hospital grouping. The inpatient DRG classification does not apply to outpatients. We would classify outpatients based on groupings of the various ICD-9 diagnosis codes:

ICD-9 codes 001–139: infectious and parasitic diseases
ICD-9 codes 140–239: neoplasms
ICD-9 codes 240–279: endocrine, nutritional and metabolic diseases, and immunity disorders
ICD-9 codes 280–289: diseases of the blood and blood-forming organs
ICD-9 codes 290–319: mental disorders
ICD-9 codes 320–359: diseases of the nervous system
ICD-9 codes 360–389: diseases of the sense organs
ICD-9 codes 390–459: diseases of the circulatory system
ICD-9 codes 460–519: diseases of the respiratory system
ICD-9 codes 520–579: diseases of the digestive system
ICD-9 codes 580–629: diseases of the genitourinary system
ICD-9 codes 630–679: complications of pregnancy, childbirth, and the puerperium
ICD-9 codes 680–709: diseases of the skin and subcutaneous tissue
ICD-9 codes 710–739: diseases of the musculoskeletal system and connective tissue
ICD-9 codes 740–759: congenital anomalies
ICD-9 codes 760–779: certain conditions originating in the perinatal period
ICD-9 codes 780–799: symptoms, signs, and ill-defined conditions
ICD-9 codes 800–999: injury and poisoning
ICD-9 codes E and V codes: external causes of injury and supplemental classification

Our request for Outpatient Observation and Emergency Department data is to build our population health capabilities to meet the challenges of a fully integrated delivery system managing the overall quality and cost of care for defined populations. We are an academic health system which desires to assess our community-based primary care network and community based specialist programs to ensure adequate services. This will allow us to continue our efforts to provide convenient low cost office based practices and enhanced integration of care. We believe the data within the Outpatient Observation and Emergency Department will help provide resources to adequately meet the needs of our community.