

Commonwealth of Massachusetts  
Center for Health Information & Analysis (CHIA)  
Non-Government MA APCD Request for 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 schedules for MA APCD data 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:	Evan Matros, MD, MPH, MMSc
Title:	Assistant Professor, Division of Plastic & Reconstructive Surgery
Organization:	Memorial Sloan Kettering Cancer Center
Project Title:	The impact of reimbursement on variations in breast reconstruction utilization and quality across hospitals, physicians and payers in the state of Massachusetts.
Mailing Address:	Division of Plastic & Reconstructive Surgery MRI 1036 1275 York Avenue New York, NY - 10065
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Names of Co-Investigators:	Shantanu N. Razdan, MD, MSPH Mark Radzyner, Esq David M. Rubin
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Original Data Request Submission Date:	4.19.16
Dates Data Request Revised:	5.20.16
Project Objectives (240 character limit)	<ol style="list-style-type: none"> <li>1. To describe the price variation in post mastectomy breast reconstruction surgery in Massachusetts.</li> <li>2. To identify and describe predictors of price variation in breast reconstruction</li> <li>3. To evaluate the influence of price variation on spending, behavior and quality of care.</li> <li>4. To evaluate the relationship between hospital or provider volume with outcomes.</li> </ol>
Project Research Questions (if applicable) or Business Use Case(s):	<p><b>Aim 1a.</b> Describe actual hospital reimbursement and its variation for different types of breast reconstruction procedures across patient populations, payers and providers.</p> <p><b>Aim 1b.</b> Measure different components of total hospital payment such as physician fees, material costs, laboratory procedures, imaging, inpatient stay related payments and others. Identify the respective share of each component and analyze how they vary across patient populations, providers and payers.</p> <p><b>Aim 1c.</b> Use measures, such as complications, reoperation and</p>

readmission, to describe the quality of care following breast reconstruction. Correlations with price will identify physicians and hospitals providing high value care.

**Aim 1d.** Evaluate time trends in actual hospital payments for different types of breast reconstruction across different patient populations, providers and payers. In addition, highlight changes in price variation over time.

**Aim 2a.** Explore the predictive power of patient, physician, hospital and payer characteristics on breast reconstruction reimbursement.

**Aim 2b.** Analyze competition and market structure for the main breast reconstructive procedures and its effect on actual reimbursements. Market anatomy and its effect on prices shall be analyzed on patient population, provider and payer levels.

**Aim 3a.** Estimate potential cost savings that would result from reducing variation in reimbursement for different breast reconstructive procedures. Different payment reduction scenarios will be considered as well as their consequences for different patient groups, providers and payers.

**Aim 3b.** Investigate whether financial incentives explain access disparities in breast reconstruction and the choice of reconstruction type. Analyze the relationship between breast reconstruction utilization patterns and variation in payments across patient populations, providers and payers.

**Aim4a.** Evaluate the relationship between hospital or provider volume and outcome (resource utilization and total costs) in patients undergoing breast reconstruction.

**Aim 4b.** Compare provider or hospital volume and outcomes relationship in common cancer surgeries.

## II. PROJECT SUMMARY

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

Post mastectomy breast reconstruction is an essential component of breast cancer surgery in women as it recreates the breast mound and improves psychosocial and sexual well-being. The Women's Health and Cancer Right's Act of 1998 made it mandatory for insurance companies to cover breast reconstruction surgery in women undergoing mastectomy. Despite this law, not every woman undergoing mastectomy surgery in the US receives breast reconstruction. This is attributable to a number of factors such as racial disparities, insurance type, travel distance, access to specialty centers and personal preferences.

There are two main types of breast reconstruction techniques i.e. implants and autologous tissue, each with its pros and cons, and the decision to choose either one often depends on patient or surgeon preference. Using the Nationwide Inpatient Sample Database and National Cancer Data Base we have shown that the rate of implant based breast reconstruction in the US has been increasing markedly relative to use of autologous tissue. A variety of factors may explain the shift towards implants. This may reflect increasing rates of double mastectomies, patient preference, or greater surgeon reimbursement per hour in the operating room for implants compared to autologous tissue. However, long-term studies consistently demonstrate greater health related quality of life with autologous flaps. Importantly the number of centers performing autologous reconstruction appears to be declining with a shift towards high volume, academic

centers.

Existing studies in the literature addressing economic aspects of breast reconstruction have used hospital charges in their analysis, not actual payments. Moreover, no data has been published on physician payments for breast reconstruction services. We intend to use the reimbursement data from CHIA, to understand its impact on variations in breast reconstruction utilization and quality across hospitals, physicians and payers in the state of Massachusetts. By analyzing explanatory factors of price variation and the effect of reimbursement on behavior, the current project aims to make breast reconstruction a more transparent and accountable field of health care.

A volume-outcomes relationship has been established in the literature for complex procedures i.e. high volume centers/surgeons have better outcomes than low volume ones. However no study in breast reconstruction literature has demonstrated this relationship using a claims based dataset yet. If such a relationship does exist then it would be of interest to compare it with other oncologic procedures as well.

### III. FILES REQUESTED

Please indicate which MA APCD file(s) you are requesting, the year(s) of data requested, and your justification for requesting each file. Please refer to the MA APCD Release 4.0 Documentation Guides for details of the file contents.

MA ALL PAYER CLAIMS DATABASE FILES	Year(s) Of Data Requested
	Current Yrs. Available
	<input checked="" type="checkbox"/> 2010 <input checked="" type="checkbox"/> 2011 <input checked="" type="checkbox"/> 2012 <input checked="" type="checkbox"/> 2013 <input checked="" type="checkbox"/> 2014
<input checked="" type="checkbox"/> <b>Medical Claims</b>	<b>Please provide justification for requesting Medical Claims file:</b> Medical claims file is essential to identify the primary cohort i.e. women who underwent breast reconstruction surgery. This file also contains other variables of interest such as socio-demographic and clinical covariates. Since our primary outcome is reimbursement, that information is also available in this file.
<input type="checkbox"/> <b>Pharmacy Claims</b>	<b>Please provide justification for requesting Pharmacy Claims file:</b>
<input type="checkbox"/> <b>Dental Claims</b>	<b>Please provide justification for requesting Dental Claims file:</b>
<input checked="" type="checkbox"/> <b>Member Eligibility</b>	<b>Please provide justification for requesting Member Eligibility file:</b> This file contains detailed information about all insurance related variables of our interest. Since one of our goals is to evaluate effect of insurance status (e.g. insured, uninsured, underinsured), type of insurance etc. on method of breast reconstruction received, we will be able to perform that analysis using this file.
<input type="checkbox"/> <b>Provider</b> (encrypted NPI) Standard or <input checked="" type="checkbox"/> <b>Provider*</b> (unencrypted NPI)	<b>Please provide justification for requesting Provider file:</b> We intend to evaluate the effect of Hospital/Surgeon volume on outcomes and effect of market concentration on reimbursements.  <b>*Please provide justification for requesting unencrypted NPI (if requested).</b> <b>Refer to specifics in your methodology:</b> We intend to evaluate the effect of Hospital/Surgeon volume on outcomes and effect of market concentration on reimbursements. An encrypted NPI will allow us to carry out this analysis.
<input checked="" type="checkbox"/> <b>Product</b>	<b>Please provide justification for requesting Product file:</b> This file contains information on insurance models, insurance-plan market, benefits and deductibles. We will need this information for comprehensive analysis of effect

	of insurance status on method of breast reconstruction and other cancer surgeries.
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**IV. GEOGRAPHIC DETAIL**Please choose one of the following geographic options for MA residents: 3 Digit Zip Code (MA) 5 Digit Zip Code (MA)

**\*\*\*Please provide justification for requesting 5 digit zip code. Refer to specifics in your methodology:**  
We would like to calculate variation in breast reconstruction reimbursements within as well as between different markets. We will need the 5 digit zip code to calculate the metropolitan statistical area (MSA) for this analysis.

**V. DATE DETAIL**Please choose one option from the following options for dates: Year (YYYY) (Standard) Month (YYYYMM) \*\*\* Day (YYYYMMDD) \*\*\*

[for selected data elements only]

**\*\*\* If requested, please provide justification for requesting Month or Day. Refer to specifics in your methodology:**

Since we are interested in breast reconstruction and other cancer surgeries, most of the therapeutic options whether inpatient or outpatient (e.g. surgery, chemotherapy, radiation therapy) involved in cancer treatment occur within days to weeks of each other. Outcomes of interest such as complications, length of stay are also usually calculated as number of days since surgery. Hence we would like to request dates that include months and days to calculate appropriate time intervals.

**VI. FEE INFORMATION**Please consult the fee schedules for MA APCD data, available at [http://chiamass.gov/regulations/#957\\_5](http://chiamass.gov/regulations/#957_5), and select from the following options:**APCD Applicants Only** Academic Researcher Others (Single Use) Others (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.

**VII. MEDICAID DATA [APCD Only]**

Please indicate here whether you are seeking Medicaid Data:

 Yes No

Federal law (42 USC 1396a(a)7) restricts the use of individually identifiable data of Medicaid recipients to uses that are directly connected with the administration of the Medicaid program. If you are requesting Medicaid data from Level 2 or above, please describe in detail why your use of the data meets this requirement. Applications requesting Medicaid data will be forwarded to MassHealth for a determination as to whether the



proposed use of the data is directly connected to the administration of the Medicaid program. MassHealth may impose additional requirements on applicants for Medicaid data as necessary to ensure compliance with federal laws and regulations regarding Medicaid.

Existing literature shows substantial disparities in breast reconstruction rates after cancer surgery between privately insured and Medicaid patients. This project aims to explain these disparities and help identify means to improve access to breast reconstruction for Medicaid patients. These goals cannot be met without Medicaid data.

## VIII. PURPOSE AND INTENDED USE

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

There is very limited evidence on price variation in breast reconstruction following breast cancer treatment. In addition, existing literature shows disparities in reconstruction rates and method across patient populations, providers and payers, but does not include actual reimbursement as an explanatory factor. Hence, by increasing price transparency, analyzing explanatory factors of price variation and the effect of reimbursement on behavior, this project adds valuable information to the existing scientific literature. Moreover, this project aims to make breast reconstruction a more transparent and accountable field of health care, which will benefit patients, providers, payers and the general public.

2. **Attach** a brief (1-2 pages) description of your research methodology. (This description will not be posted on the internet.)
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 5.30.16.
  - No, this project is not subject to IRB review.
  - No, my organization does not have an IRB.

## IX. APPLICANT QUALIFICATIONS

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

**Evan Matros, MD, MPH, MMSc** is an Assistant Professor in the Division of Plastic & Reconstructive Surgery at Memorial Sloan Kettering Cancer Center and will serve as Principal Investigator. He has special interest in outcomes research in plastic surgery. He has a Master of Medical Sciences degree from Harvard Medical School and a Master of Public Health degree in Healthcare Management from Columbia University School of Public Health. He has a special interest in the impact of health policy and payment reform within plastic surgery. Importantly, his participation in a multi disciplinary clinical environment as a plastic surgeon caring for women with breast cancer at MSKCC has familiarized him with decision making in breast reconstruction. The current research builds on his previous research on trends of mastectomies, implant and autologous breast reconstruction in the US using the Nationwide Inpatient Sample (NIS) database and the National Cancer Data Base (NCDB).

**Shantanu Razdan** is a Research Fellow in the Division of Plastic & Reconstructive Surgery at Memorial Sloan Kettering Cancer Center under Dr. Matros. He has a Master of Science in Public Health in Outcomes Research degree in addition to his medical degree that provides him a rare perspective in analyzing the trends in variation in breast reconstruction reimbursements. The MSPH degree provides him a solid background in research methodology and statistical techniques required to work with large datasets. He also

has previous experience of working with large population level datasets such as NIS and NCDB.

**Mark Radzyner, Esq.** is the Vice President, Managed Care and Associate General Counsel, at Memorial Sloan-Kettering Cancer Center in New York City. He holds a J.D. from New York Law School and an M.B.A. in Health Care Administration. He has held various financial and administrative positions at universities, government, skilled nursing facilities, and hospitals. He participated in the New York State Case Mix Study, a Federally funded research project that developed the methodology to reimburse hospitals using DRGs (Diagnosis Related Groups). In his current position, he is responsible for contracting and maintains relationships on behalf of the hospital and its physicians with commercial payors and initiated an outcomes analysis program that performs comparisons of national, State and internal clinical and financial data. In his previous role at MSKCC he was responsible for the hospital's reimbursement from third party payors and financial analysis. Mr. Radzyner maintains appointments on the Greater New York Hospital Association Outcomes Committee and the National Comprehensive Cancer Network Products and Services Committee. He has co-authored and assisted on studies of the procedure volume-outcome relationship, cost analysis of clinical trials, hospital responses to economic changes, tools to collect healthcare costs, and risk adjusting survival outcomes that were published in various peer reviewed journals including JAMA Oncology, Surgery, Cancer, Journal of Clinical Oncology, and the Annals of Surgery.

**David M. Rubin** is the Manager of Health Outcomes and Quantitative Analytics in the Financial Planning department of Memorial Sloan Kettering Cancer Center. He is primarily responsible for big data analytics as it pertains to demonstrating value, refining reimbursement models, and managing financial risk related to cancer treatment and pricing. During his 20 year tenure, he has been an integral part in negotiating payment arrangements with insurers, and has been actively participating on various national oncology-related committees. He has coauthored multiple manuscripts on cancer survival and cost for peer-reviewed journals including JAMA Oncology, Surgery, Journal of Surgical Oncology, Journal of Clinical Oncology, and the Annals of Surgery.

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.)

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

What is the purpose of the linkage:

N/A

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

N/A

Individual Provider Level Data

What is the purpose of the linkage:

The purpose of linkage is to obtain additional details on surgeons that will be used to adjust for differences in provider characteristics such as age, gender, specialty, type of practice and types of insurance accepted.

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

We intend to use publicly available databases such as CMS National Plan and Provider Enumeration System (NPES) and American Medical Association (AMA) Physician Masterfile. Decrypted NPIs will be used for linking the necessary files.

Individual Facility Level Data

What is the purpose of the linkage:

The purpose of linkage is to obtain additional details on facilities that will be used to adjust for differences in facility characteristics e.g. volume, location and academic or private etc.

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

We intend to use publicly available databases such as CMS National Plan and Provider Enumeration System (NPES) and CMS Provider of Services (POS) files. Decrypted NPIs will be used for linking the required files.

Aggregate Data

What is the purpose of the linkage:

5 digit ZIP codes will be used for calculating metropolitan statistical areas (MSA). The purpose of the linkage is to calculate and compare within market as well as across market variation in reimbursement of breast reconstruction and other common cancer surgeries.

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

Publicly available files that provide MSAs corresponding to all 5 digit ZIP codes will be used for this purpose. Decrypted 5 digit zip codes 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 it will link each dataset .

For linking unique decrypted NPIs and 5 digit zip codes to above described publicly available files we intend to use a deterministic algorithm. Additionally, we plan to use probabilistic algorithm for any non-unique variables.

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

In order to prevent the identification of individual patients we will not link datasets at an individual patient level. Data linkage performed at provider/facility/aggregate level will not provide any additional information that might identify individual patients. Furthermore the linked dataset will be stored and maintained as per our institutional security policies that have been elaborated in the data management plan.

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.

#### XI. 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.

We plan to write papers and submit them to journals like Plastic and Reconstructive Surgery, Annals of Surgical Oncology and Journal of Surgical Oncology. We also intend to present our findings at national and international plastic surgery and surgical oncology meetings such as American Association of Plastic Surgeons and American Society of Plastic Surgeons.

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.

Any interested party will be able to get access to our findings from the published papers. There will be no fee involved on our end.

3. Will you use the data for consulting purposes?

Yes

No

4. Will you be selling standard report products using the data?

Yes

No

5. Will you be selling a software product using the data?

Yes

No

6. Will you be reselling the data?

Yes

No

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

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



**XII. 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:	
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
- 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.

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

11. Describe your oversight and monitoring of the activity and actions of this 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, as detailed in the DUA and the applicant’s CHIA-approved Data Management Plan.

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

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:	<i>Em</i>
Printed Name:	Evan Matros, MD
Title	Assistant Profesor
Original Data Request Submission Date:	4.19.16
Dates Data Request Revised:	5.20.16