**CHIA Enrollment Trends (July 2015)**

**MA APCD Programming Code**

As described in the CHIA Enrollment Trends [Technical Notes](http://www.chiamass.gov/assets/Enrollment-Trends-Technical-Notes.pdf), Enrollment Trends is interested in monitoring unique Massachusetts residents with primary medical health insurance coverage using eligibility data from the Massachusetts All Payer Claims Database (MA APCD). MA APCD membership reports are generated on a bi-annual basis and sourced from the most recently submitted carrier-specific Member Eligibility (ME) file. Twenty-four months of membership data are used and segmented by product enrollment date spans.

Provided below are the methodology and programming code used by CHIA to create the MA APCD membership reports for Enrollment Trends. The methodology and code have been discussed with and reviewed by the top 16 commercial payers but are still subject to development in order to arrive at the most accurate membership counts for each payer.

1. **Methodology**

Enrollment is determined if the last day of the quarter (i.e., Snapshot Date) is within the Product Enrollment Start Date (ME041) and Product Enrollment End Date (ME042) of a member record (i.e., ME041 ≤ Snapshot Date ≤ ME042). A member record with NULL values for either ME041 or ME042 is considered actively enrolled. Members are distinguished using data element HashCarrierSpecificUniqueMemberID (ME107) by OrgID (ME001).

MA APCD membership reports do not count duplicate member records. A unique member record is selected according to the following criteria, in order of significance:

Subset by the following:

1. Massachusetts resident (ME016=MA)
2. Medical coverage (ME018=1)
3. Primary insurance[[1]](#footnote-1) (ME028=1)

De-duplicate by the following order:

1. Coverage type[[2]](#footnote-2) (ME029)
   1. ME029=(ASO, ASW) for Self-Insured
   2. ME029=(UND) for Fully-Insured
   3. ME029=(STN, OTH) for Other
2. Last activity date (ME056)
3. MemberEligibilityID (Derived-ME05)
4. **Programming Code[[3]](#footnote-3)**

MA APCD data extraction and aggregation are performed in SQL; additional data manipulations, such as hard-coded category groupings, are performed in SAS.

1. **SQL Code**

DECLARE @YEAR INT = 2014 /\*year of first date of enrollment\*/

DECLARE @MONTH INT = 3 /\*month of first date of enrollment\*/

DECLARE @DAY INT = 31 /\*day of first date of enrollment\*/

DECLARE @SYM AS VARCHAR(6) = '201503'       /\*greatest Submission Year and Month requested\*/

/\*Get the latest Submission Control IDs (SCIDS) for each OrgID based on SubmissionYear and SubmissionMonth, making sure that SubmissionYear and SubmissionMonth are not greater than @SYM \*/

;WITH

SUB AS

(SELECT [SubmissionControlID] AS SCID FROM

  (SELECT \*, ROW\_NUMBER() OVER(PARTITION BY OrgID ORDER BY CASE WHEN SYM>@SYM THEN 0 ELSE SYM END DESC) AS S

  FROM (SELECT OrgID

         ,[SubmissionControlID]

         ,CONCAT(SubmissionYear, RIGHT('0'+ CAST(SubmissionMonth AS VARCHAR(2)), 2)) AS SYM

  FROM [APCDCentral2DQS].[dbo].[tblSubmissionControl]

  WHERE StagingCountMERecord is not null and

  OrgID in (290,291, 295,296, 300, 301, 302,312, 3505, 3735, 4962, 7041, 7655,7789,8026, 8647, 10353,10441,10444,10647,10920, 10926,10929,11474,11726,12122,12226, 10632))S1)S2

  WHERE S=1

),

/\*Create enrollment dates needed for report\*/

MONTHS (DATES) AS

(SELECT DATEFROMPARTS(@year,@month,@day)

UNION all

SELECT cast(DATEADD(dd,-1,DATEADD(mm, DATEDIFF(m,0,dateadd(month,3,dates))+1,0)) AS DATE)

FROM MONTHS

WHERE DATES <= dateadd(month,9,datefromparts(@year,@month,@day))

),

/\*Select most recent record from Product file for each ProductIDNumber\*/

PRODUCT AS (SELECT OrgID, ProductIDNumber, ProductLineofBusinessModel FROM

(SELECT \*, ROW\_NUMBER() OVER (PARTITION BY OrgID, ProductIDNumber ORDER BY SubmissionYearMonth DESC) AS S

FROM APCDCentral2.dbo.tblProduct) PR

WHERE S=1),

/\*Extract relevant ACA Enrollment Trends fields from APCD Central and format them to match SAS standards --- add the sorter fields\*/

       ME1 AS (SELECT DISTINCT

       [MemberEligibilityID]

      ,ME.[OrgID]

      ,ME.[SubmissionControlID]

      ,[SubmissionYearMonth]

      ,[InsuranceTypeCodeProduct]

      ,[MedicalCoverage]

      ,[PrimaryInsuranceIndicator]

      ,[CoverageType]

      ,[MarketCategoryCode]

      ,[SpecialCoverage]

      ,[ProductIDNumber]

      ,CAST([ProductEnrollmentStartDate] AS DATE) AS StartDate

      ,CAST(ISNULL([ProductEnrollmentEndDate],'99991231') AS DATE) AS EndDate

      ,[LastActivityDate]

      ,ME.[HashCarrierSpecificUniqueMemberID] AS UniqueMemberID

      ,[RiskAdjustmentCoveredBenefitPlan] AS RACP

      ,[MemberStateorProvince]

      ,CASE [MemberStateorProvince] WHEN 'MA' THEN 1 ELSE 0 END AS MemberMA

      ,CASE [MedicalCoverage] WHEN 1 THEN 1 ELSE 2 END AS SORTER1

      ,CASE [CoverageType] WHEN 'ASO' THEN 1 WHEN 'ASW' THEN 1 WHEN 'UND' THEN 2 ELSE 3 END AS SORTER2

      ,CASE [PrimaryInsuranceIndicator] WHEN 1 THEN 1 ELSE 2 END AS SORTER3

  FROM [APCDCentral2].[dbo].[vwMemberEligibility] AS ME

  INNER JOIN SUB ON ME.[SubmissionControlID]=SUB.SCID),

/\*Create a separate enrollment record for each enrollment date\*/

HSP AS (SELECT \* FROM ME1, MONTHS WHERE DATES BETWEEN StartDate AND EndDate),

/\*Join PR file to ME file - include ProductLineofBusinessModel to membership\*/

HSP\_PR AS

 (SELECT DISTINCT [MemberEligibilityID]

      ,HSP.[OrgID]

      ,[SubmissionControlID]

      ,[SubmissionYearMonth]

      ,[InsuranceTypeCodeProduct]

      ,[MedicalCoverage]

      ,[PrimaryInsuranceIndicator]

      ,[CoverageType]

      ,[MarketCategoryCode]

      ,[SpecialCoverage]

      ,HSP.[ProductIDNumber]

      ,PRODUCT.[ProductLineofBusinessModel]

      ,StartDate

      ,EndDate

      ,[LastActivityDate]

      ,UniqueMemberID

      ,RACP

,MemberMA

,SORTER1

,SORTER2

,SORTER3

,DATES

,[MemberStateorProvince]

FROM HSP

LEFT JOIN PRODUCT ON HSP.[OrgID]=PRODUCT.[OrgID] and HSP.[ProductIDNumber]=PRODUCT.[ProductIDNumber])

/\*De-duplicate and count records based on sort order – this is the final SQL output – extract and do additional bucketing in SAS\*/

SELECT OrgID

      ,SubmissionYearMonth

      ,SubmissionControlID

      ,DATES

      ,InsuranceTypeCodeProduct

      ,MedicalCoverage

      ,PrimaryInsuranceIndicator

      ,CoverageType

      ,SpecialCoverage

      ,MarketCategoryCode

      ,ProductIDNumber

      ,ProductLineofBusinessModel

      ,RACP

      ,MemberMA

      ,MemberStateorProvince

      ,SUM(S) AS Member\_Count

  FROM

  (SELECT \*, ROW\_NUMBER() OVER (PARTITION BY DATES, OrgID, UniqueMemberID ORDER BY MemberMA DESC, SORTER1, SORTER3, SORTER2, LastActivityDate DESC, MemberEligibilityID DESC) AS S

  FROM HSP\_PR) S1

  WHERE S=1

  GROUP BY OrgID

      ,SubmissionYearMonth

      ,SubmissionControlID

      ,DATES

      ,InsuranceTypeCodeProduct

      ,MedicalCoverage

      ,PrimaryInsuranceIndicator

      ,CoverageType

      ,SpecialCoverage

      ,MarketCategoryCode

      ,ProductIDNumber

      ,ProductLineofBusinessModel

      ,RACP

      ,MemberMA

      ,MemberStateorProvince

1. **SAS Code**

%LET inDir = C:\Flat Files;

%LET outDir = C:\Flat Files Updated;

%LET filename = Payers\_Q1;

/\* Create Enrollment Trends (ET) hard-coded groupings

INPUT: flat file csv-file that contains aggregate enrollment counts

OUTPUT: flat file csv-file that contains INPUT data as well as hard-coded groupings

Note: Set informat/format lengths of data elements with default character lengths

of 1, 2, or 3 based on APCD Submission Guides, such as InsuranceTypeCodeProduct

with a default character length of 2, to 4 in order to account for NULL values.

\*/

/\* Import csv-file \*/

**DATA** WORK.MEMBER\_COUNT ;

INFILE "&inDir.\&filename..csv"

DELIMITER = ',' MISSOVER DSD LRECL=**32767** FIRSTOBS=**2** ;

INFORMAT OrgID best32. ;

INFORMAT SubmissionYearMonth best32. ;

INFORMAT SubmissionControlID best32. ;

INFORMAT DATES $10. ;

INFORMAT InsuranceTypeCodeProduct $4. ;

INFORMAT MedicalCoverage best32. ;

INFORMAT PrimaryInsuranceIndicator best32. ;

INFORMAT CoverageType $4. ;

INFORMAT SpecialCoverage $4. ;

INFORMAT MarketCategoryCode $4. ;

INFORMAT ProductIDNumber $28. ;

INFORMAT ProductLineofBusinessModel $4. ;

INFORMAT RACP $4. ;

INFORMAT MemberMA best32. ;

INFORMAT MemberStateorProvince $4. ;

INFORMAT Member\_Count best32. ;

FORMAT OrgID best32. ;

FORMAT SubmissionYearMonth best12. ;

FORMAT SubmissionControlID best12. ;

FORMAT DATES $10. ;

FORMAT InsuranceTypeCodeProduct $4. ;

FORMAT MedicalCoverage best12. ;

FORMAT PrimaryInsuranceIndicator best12. ;

FORMAT CoverageType $4. ;

FORMAT SpecialCoverage $4. ;

FORMAT MarketCategoryCode $4. ;

FORMAT ProductIDNumber $28. ;

FORMAT ProductLineofBusinessModel $4. ;

FORMAT RACP $4. ;

FORMAT MemberMA best12. ;

FORMAT MemberStateorProvince $4. ;

FORMAT Member\_Count best12. ;

INPUT OrgID

SubmissionYearMonth

SubmissionControlID

DATES $

InsuranceTypeCodeProduct $

MedicalCoverage

PrimaryInsuranceIndicator

CoverageType $

SpecialCoverage $

MarketCategoryCode $

ProductIDNumber $

ProductLineofBusinessModel $

RACP $

MemberMA

MemberStateorProvince $

Member\_Count

;

**RUN**;

/\* Create new hard-coded groupings \*/

**PROC** **SQL**;

CREATE TABLE REPORT AS

SELECT \*

/\* HNE's (OrgID=301) Medicaid population is classified as

PrimaryInsuranceIndicator=2 in APCD.

Need to hardcode PRIMARYCOVERAGE=1 for ET reporting. \*/

, CASE WHEN ORGID=**301** THEN

CASE WHEN InsuranceTypeCodeProduct='MO' THEN **1**

ELSE PrimaryInsuranceIndicator END

ELSE PrimaryInsuranceIndicator

END AS PRIMARYCOVERAGE

/\* Set Group Size by Market Category Code \*/

, CASE WHEN MarketCategoryCode='IND' THEN 'Individual'

WHEN MarketCategoryCode='GCV' THEN 'Individual'

WHEN MarketCategoryCode='ISCO' THEN 'Individual'

WHEN MarketCategoryCode='GS1' THEN 'Small Group (1-25)'

WHEN MarketCategoryCode='GS2' THEN 'Small Group (1-25)'

WHEN MarketCategoryCode='GS3' THEN 'Small Group (1-25)'

WHEN MarketCategoryCode='GS4' THEN 'Small Group (25-50)'

WHEN MarketCategoryCode='GLG1' THEN 'Mid-Size Group (51-100)'

WHEN MarketCategoryCode='GLG2' THEN 'Large Group (101-499)'

WHEN MarketCategoryCode='GLG3' THEN 'Large Group (101-499)'

WHEN MarketCategoryCode='GLG4' THEN 'Jumbo-Size Group (500+)'

WHEN MarketCategoryCode='GSA' THEN 'Qualified Association'

ELSE 'Other'

END AS GROUPSIZE

/\* Tufts' (OrgID=8647) self-insured population is classified as CoverageType='OTH'

in APCD because Tufts does not know if its SI has stop loss or not.

Need to hardcode MARKET='Self-Insured' for ET reporting. \*/

, CASE WHEN ORGID=**8647** THEN

CASE WHEN CoverageType='OTH' THEN 'Self-Insured'

WHEN CoverageType='UND' THEN 'Fully-Insured'

WHEN CoverageType='ASO' THEN 'Self-Insured'

WHEN CoverageType='ASW' THEN 'Self-Insured'

ELSE 'Other' END

/\* Fallon's population in OrgID=296 is all classified as CoverageType='OTH'

even though it is known that their line of business if fully-insured.

Need to hardcode MARKET='Fully-Insured' for ET reporting. \*/

WHEN ORGID=**296** THEN 'Fully-Insured'

/\* Fallon (OrgID=8026) incorrectly classified its self-insured population as

InsuranceTypeCodeProduct='09'. As a result, cannot breakout its self-

insured population by product type. All other members are fully-insured.

Need to hardcode MARKET='Self-Insured' for InsuranceTypeCodeProduct='09'

and MARKET='Fully-Insured' for all others for ET reporting. \*/

WHEN ORGID=**8026** THEN

CASE WHEN InsuranceTypeCodeProduct='09' THEN 'Self-Insured'

ELSE 'Fully-Insured' END

/\* United (OrgID=7789) is a student health plan, which is classified as

CoverageType=STN.

Need to hard-code as 'Fully-Insured' for ET reporting. \*/

WHEN ORGID=**7789** THEN

CASE WHEN CoverageType='STN' THEN 'Fully-Insured'

WHEN CoverageType='UND' THEN 'Fully-Insured'

WHEN CoverageType='ASO' THEN 'Self-Insured'

WHEN CoverageType='ASW' THEN 'Self-Insured'

ELSE 'Other' END

/\* Set Market by Coverage Type \*/

ELSE CASE WHEN CoverageType='UND' THEN 'Fully-Insured'

WHEN CoverageType='ASO' THEN 'Self-Insured'

WHEN CoverageType='ASW' THEN 'Self-Insured'

ELSE 'Other' END

END AS MARKET

/\* Set Connector assignment by RACP \*/

, CASE WHEN RACP in ('1','3') THEN 'Connector'

ELSE 'Non-Connector'

END AS QHP

/\* Aetna's population in OrgID=10929 is supposed to be all Medicare members.

But Aetna submits their Medicare members under various Product Type

classifications (12, HM, MD).

Need to hardcode PLANTYPE='Medicare' for ET reporting. \*/

, CASE WHEN ORGID=**10929** THEN 'Medicare'

/\* Fallon's population in OrgID=12122 is supposed to be all OneCare members.

But Fallon submits their OneCare members as Product Type = ZZ.

Need to hardcode PLANTYPE='OneCare' for ET reporting. \*/

WHEN ORGID=**12122** THEN 'OneCare'

/\* Network Health's QHP population is classified as Product Type = 'CI'

and its MSP population is classified as Product Type = 'MO'.

Update on 6/1/2015: Network Health's QHP should be classified as 'HMO'.

Need to hardcode QHP as PLANTYPE='HMO' for ET reporting. \*/

WHEN ORGID=**4962** THEN

CASE WHEN InsuranceTypeCodeProduct='CI' THEN 'HMO'

WHEN InsuranceTypeCodeProduct='MO' THEN 'Medical Security Program'

WHEN InsuranceTypeCodeProduct='MC' THEN 'Medicaid'

WHEN InsuranceTypeCodeProduct='CC' THEN 'Commonwealth Care'

WHEN InsuranceTypeCodeProduct='CE' THEN 'Commonwealth Choice'

WHEN InsuranceTypeCodeProduct='HM' THEN 'HMO'

WHEN InsuranceTypeCodeProduct='12' THEN 'PPO'

WHEN InsuranceTypeCodeProduct='13' THEN 'POS'

WHEN InsuranceTypeCodeProduct='14' THEN 'EPO'

WHEN InsuranceTypeCodeProduct='15' THEN 'Indemnity'

WHEN InsuranceTypeCodeProduct='16' THEN 'Medicare'

WHEN InsuranceTypeCodeProduct='HN' THEN 'Medicare'

WHEN InsuranceTypeCodeProduct='20' THEN 'Medicare'

WHEN InsuranceTypeCodeProduct='SC' THEN 'Senior Care Option'

ELSE 'Other' END

/\* Set Plan Type by Insurance Type Code Product \*/

ELSE CASE WHEN InsuranceTypeCodeProduct='MC' THEN 'Medicaid'

WHEN InsuranceTypeCodeProduct='MO' THEN 'Medicaid'

WHEN InsuranceTypeCodeProduct='CC' THEN 'Commonwealth Care'

WHEN SpecialCoverage='CC' THEN 'Commonwealth Care'

WHEN InsuranceTypeCodeProduct='CE' THEN 'Commonwealth Choice'

WHEN InsuranceTypeCodeProduct='HM' THEN 'HMO'

WHEN InsuranceTypeCodeProduct='12' THEN 'PPO'

WHEN InsuranceTypeCodeProduct='13' THEN 'POS'

WHEN InsuranceTypeCodeProduct='14' THEN 'EPO'

WHEN InsuranceTypeCodeProduct='15' THEN 'Indemnity'

WHEN InsuranceTypeCodeProduct='16' THEN 'Medicare'

WHEN InsuranceTypeCodeProduct='HN' THEN 'Medicare'

WHEN InsuranceTypeCodeProduct='20' THEN 'Medicare'

WHEN InsuranceTypeCodeProduct='SC' THEN 'Senior Care Option'

ELSE 'Other' END

END AS PLANTYPE

/\* Set Company Name by OrgID \*/

, CASE WHEN OrgID IN (**290**, **7655**, **10353**, **10441**, **10442**, **10647**, **10929**, **11745**) THEN 'Aetna'

WHEN OrgID IN (**291**) THEN 'BCBS'

WHEN OrgID IN (**3505**) THEN 'BMC'

WHEN OrgID IN (**10920**) THEN 'CeltiCare'

WHEN OrgID IN (**293**, **295**, **7422**, **10447**, **11474**, **11499**, **11726**, **11215**) THEN 'CIGNA'

WHEN OrgID IN (**7041**) THEN 'ConnectiCare'

WHEN OrgID IN (**296**, **8026**, **12122**) THEN 'Fallon'

WHEN OrgID IN (**300**) THEN 'HPHC'

WHEN OrgID IN (**302**) THEN 'HPI'

WHEN OrgID IN (**301**) THEN 'HNE'

WHEN OrgID IN (**3156**) THEN 'MassHealth'

WHEN OrgID IN (**12226**) THEN 'Minuteman'

WHEN OrgID IN (**3735**) THEN 'NHP'

WHEN OrgID IN (**4962**) THEN 'NetworkHealth'

WHEN OrgID IN (**8647**) THEN 'Tufts'

WHEN OrgID IN (**312**, **313**, **7789**, **10444**, **10925**, **10926**, **10932**, **10933**, **10934**, **10935**) THEN 'United'

WHEN OrgID IN (**10632**) THEN 'WellPoint'

ELSE 'Other'

END AS CompanyName

FROM WORK.MEMBER\_COUNT;

**QUIT**;

/\* Export updated data set with hard-coded groupings to csv-file for

pivoting to create ET report \*/

**PROC** **EXPORT** DATA=WORK.REPORT

OUTFILE="&outdir.\&filename.\_mod.csv"

DBMS=csv

REPLACE;

**RUN**;

**

1. Include ME028=(3, 4) if the payer stores primary insurance as such in its system. [↑](#footnote-ref-1)
2. This selection hierarchy is to ensure that self-insured plans are given preference over fully-insured plans for members with concurrent enrollment in both self-insured and fully-insured coverage. [↑](#footnote-ref-2)
3. CHIA is providing this methodology and programming code as a convenience to you. It has been prepared for information purposes only and is based on information believed to be reliable.  The methodology and programming code are subject to change without notice. CHIA does not provide any guarantee or opinion on the accuracy.  CHIA disclaims any liability for the improper or incorrect use of the information contained herein. [↑](#footnote-ref-3)