COMMONWEALTH OF MASSACHUSETTS
HEALTH POLICY COMMISSION

TECHNICAL APPENDIX 5
PRIMARY CARE AND BEHAVIORAL HEALTH

ADDENDUM TO 2023 COST TRENDS REPORT

Contents

1 Summary

This appendix describes the Health Policy Commission's (HPC) approach to examining **Primary Care and Behavioral Health (PCBH)** in the 2023 Cost Trends Report Chartpack.

2 Primary Care Analyses

2.1 Data Source

HPC's primary care analyses use the Center for Health Information and Analysis (CHIA) All-Payer Claims Database (APCD). Unless otherwise noted, the analyses included six commercial payers: Blue Cross Blue Shield of Massachusetts, Tufts Health Plan, Harvard Pilgrim Health Care, Mass General Brigham Health Plan (formerly AllWays Health Partners), and Anthem (including Unicare, a GIC offering). Patients were restricted to those under 65, thus eliminating those who may be on Medicare and have secondary commercial insurance.

2.2 Primary care definition

The definition of primary care largely follows the PCBH methodology developed by CHIA, and the code list can be downloaded from CHIA's website.[1] Specifically, primary care claims are identified based on two criteria:

Nature of the visit: Must be a professional claim containing a primary care service procedure code, which includes office-type visits (e.g., sick visit), preventive visits (e.g., wellness exam), vaccines, and other services. The HPC added COVID-19 vaccine codes to the vaccine category and excluded obstetrics services from CHIA definition of primary care.

Provider type: In addition to the primary care service procedure code, the service must also be provided by a primary care provider. CHIA's code list provided taxonomy codes to identify such providers. The HPC supplemented this method with providers identified through HPC's primary care provider attribution methodology. Details of the methodology can be found in the technical appendix for the Provider Organization Performance Variation Chartpack.

HPC varied their definition in two main ways. First, HPC examined both primary care taxonomy codes as well as primary care providers identified through HPC's attribution methodology (see POPV Technical Appendix for more detail). Second, HPC did not include obstetric care as primary care even though CHIA does include this care in their payer data collection.

2.3 Analyses

The sections below summarize the methods for each primary care exhibit.

2.3.1 Primary care spending compared to other medical spending

[1] https://www.chiamass.gov/assets/docs/p/pbhc/PCBH-2022-Code-Reference-File.xlsx

For exhibit "**Commercial Medical Spending by Category Per Member Per Year, 2017-2021"**, aggregate spending from the APCD medical claims was categorized into primary care spending and spending for other medical services. Per member spending was calculated by dividing aggregate spending by member years in each year of the APCD. The graphic shows medical spending only; in the text accompanying the exhibit, the HPC calculated the percent of *all* commercial spending that is primary care. For this figure, the HPC included pharmacy spending in the denominator. Gross pharmacy spending was calculated from the APCD pharmacy claims, and rebate information was obtained from CHIA's annual reports. This analysis excludes Anthem due to the lack of pharmacy claims.

2.3.2 Primary care spending by category

For exhibit "**Distribution of Primary Care Spending by Year for Commercial Payers, 2017-2021"**, the HPC used the categories of primary care services from the CHIA's PCBH code list.

2.3.3 Members with no primary care spending

For exhibit "**Percent of Commercial Members with No Primary Care Spending by Community Income Decile, 2021"**, the HPC excluded members that had partial year coverage. Members with no primary care spending include members without any medical spending.

2.3.4 Primary care visits with mental health and developmental disorder diagnosis

For exhibit "**Primary Care Visits with a Primary Diagnosis for a Mental Health Condition or Developmental Disorder, 2017-2021"**, the HPC used the CHIA PCBH code list to identify diagnosis codes for mental health conditions and developmental disorders. The HPC does not have substance use claims included in the APCD and is thus unable to evaluate primary care visits for substance use disorders.

3 Behavioral Health Analyses

3.1 Data Sources

HPC's behavioral health analyses use four different data sources: Center for Health Information and Analysis (CHIA) All-Payer Claims Database (APCD), CHIA's Acute Hospital Case Mix databases (both inpatient and emergency department discharges), and CHIA's Primary Care and Behavioral Health Expenditures: Baseline Report. Unless otherwise noted, the data for APCD-based analyses included six commercial payers: Blue Cross Blue Shield of Massachusetts, Tufts Health Plan, Harvard Pilgrim Health Care, Mass General Brigham Health Plan (formerly AllWays Health Partners), and Anthem (including Unicare, a GIC offering).

3.2 Analyses

The sections below summarize the methods for each behavioral health exhibit.

3.2.1 Percent of behavioral health spending

For exhibit **"Percent of Behavioral Health Spending by Payer and Category, 2020"**, the HPC used data from CHIA's Primary Care and Behavioral Health Expenditures: Baseline Report databook. Non-claims spending was excluded from these analyses.

3.2.2 Psychotherapy utilization

For exhibits **"Psychotherapy Utilization by Commercial Members, by Income, 2017-2021"** and **"Psychotherapy Utilization by Commercial Members, by Age, 2017-2021",** psychotherapy utilization was identified using the following Current Procedural Technology (CPT) codes: 90832, 90833, 90834, 90836, 90837 and 90838. Psychotherapy encounters were created by collapsing claim-lines in which services were provided on the same day, to the same patient, with the same CPT code, into psychotherapy visits. Individuals included in the analysis were those ages 18-64 by the end of each calendar year from 2018-2020, with 12 full months of enrollment in health insurance with any of the five payers included in the APCD, as well as 12 full months of behavioral health coverage.

To ensure inclusion of only ambulatory services, inpatient facility claims were excluded for this analysis, as were emergency department, inpatient, and residential sites of service (professional claim site of service codes 13, 14, 21, 23, 31, 33, 34, 51, and 61), as well as facility claims with HCCI outpatient facility category 1 (emergency department).

Psychotherapy services provided via telehealth were identified using a combination of professional claim site of service codes, CPT codes, and CPT code modifiers. A claim line with any of the following was identified as indicating a telehealth service:

Professional claim site of service code	2
CPT code	G0406
	G0407
	G0408
	G0425
	G0426
	G0427
	G0508
	G0509
	G2010
	G2012
	G0071
	Q3014
	T1014
	98966

	98967
	98968
	98969
	98970
	98971
	98972
	99358
	99359
	99421
	99422
	99423
	G2061
	G2062
	G2063
	99441
	99442
	99443
	99444
	G2025
	G0459
	0188T
CPT code modifier	GT
	95
	GQ
	G0

Only psychotherapy visits with specific behavioral health diagnoses were included in the analysis. The list of diagnoses included are listed in the PCBH methodology developed by CHIA, which may be downloaded from CHIA's website.

3.2.3 Psychotherapy provider types

Behavioral health providers were identified using taxonomy codes developed by CHIA and included in their PCBH methodology. Primary care providers were identified using both CHIA's code list to identify primary care provides, as well as providers identified through HPC's primary care provider attribution methodology.

Provider types included in overall provider groupings include:

Overall provider types	Included provider types
Social Worker	Clinical Social Worker, Social Worker
Counselor	Mental Health Counselor, Counselor, Addiction (Substance Use Disorder) Counselor, Professional Counselor, Pastoral Counselor

Psychologist	Clinical Psychologist, Psychologist, Counseling Psychologist, Clinical Child & Adolescent Psychologist, Cognitive & Behavioral Psychologist, Health Service Psychologist, Group Psychotherapy Psychologist, Addiction (Substance Use Disorder) Psychologist, Health Psychologist, Prescribing (Medical) Psychologist, Adult Development & Aging Psychologist
Other BH professional	Marriage & Family Therapist, Psychiatric/Mental Health Nurse Practitioner (Adult and Child/Adolescent), Psychiatric/Mental Health Registered Nurse (Adult and Child/Adolescent), Psychiatric/Mental Health Clinical Nurse (Adult and Child/Adolescent), Clinical Neuropsychologist, Case Manager/Care Coordinator, Psychoanalyst, Behavior Analyst
Non-PCP physician	Psychiatry Physician, Addiction Medicine (Psychiatry & Neurology), Addiction Psychiatry Physician, Psychosomatic Medicine Physician, Geriatric Psychiatry Physician
Facility	Mental Health Clinic/Center, Community/Behavioral Health Agency, Child & Adolescent Psychiatry Physician, Psychiatric Hospital, Adolescent and Children Mental Health Clinic/Center, Adult Mental Health Clinic/Center, Substance Use Rehabilitation Facility
PCP	Primary care physician, nurse practitioner

Only provider types with more than 500 psychotherapy encounters in 2021 are listed above.

3.2.4 Mental health prescription drug use

For exhibit "**Annual Number of Mental Health Prescriptions (30 Day Equivalent) per 1,000 Members by Age, 2017-2021"**, the HPC identified mental health claims from the APCD pharmacy claims using the National Drug Code (NDC) in CHIA's Primary Care and Behavioral Health code list.

Mental health prescription drug use by type, 2017-2021

Year	Type	Share of total mental health prescriptions (30-day equivalent)		Mental health prescriptions (30-day equivalent) per 1,000 members	Spending per member
2017	Generic	93.1%		963	$33
2017	Brand	6.9%		72	$27
2018	Generic	93.9%		1,033	$40
2018	Brand	6.1%		67	$25
2019	Generic	94.1%		1,195	$42
2019	Brand	5.4%		69	$24
2020	Generic	94.8%		1,318	$34
2020	Brand	4.9%		68	$24
2021	Generic	95.7%		1,564	$33
2021	Brand	4.3%		70	$25

Sources: HPC analysis of Center for Health Information and Analysis All-Payer Claims Database, V2021, 2017-2021.

3.2.5 Behavioral health stays at acute care hospitals

For exhibit **"Behavioral Health Stays at Acute Care Hospitals by Type, 2016-2022",** the HPC used CHIA's Acute Care Hospital Case-Mix Inpatient Discharge Database. Each inpatient discharge ("stay") that had an APR-DRG major diagnosis category of "Mental Disease and Disorders" were labeled as "mental health" stays. For this analysis, mental health disorder stays also included stays for dementia and Alzheimer's disease as they are classified as "Mental Disease and Disorders" by the APR-DRG system. Any discharge ("stay") that had an APR-DRG major diagnosis category of "Alcohol/Drug Use or Induced Mental Disorders" were labelled as "substance use disorder" stays.

For exhibits **"Mental Health Stays at Acute Care Hospitals by Length of Stay, 2016-2022"** and exhibit **"Substance Use Disorder Stays at Acute Care Hospitals by Length of Stay, 2016-2022"**, lengths of stays were grouped into categories of less than 3 days, 3 to 7 days, 8 to 13 days, or 14 days or more.

3.2.6 Behavioral health emergency department visits at acute care hospitals

For exhibit **"Behavioral Health ED visits at Acute Care Hospitals by Race/Ethnicity Per 100,000 population, 2016-2022",** the HPC used CHIA's Acute Care Hospital Emergency Discharge Database. Behavioral health ED visits were defined as any ED visit with a primary diagnosis classified as "mental, behavioral, or neurodevelopmental disorders" from AHRQ's Clinical Classification Software Refined (CCSR). Visits were categorized by race/ethnicity using CHIA's provided Hispanic indicator and by also including visits where the patient's self-reported ethnicity was "Latino". All remaining BH visits were then categorized by CHIA's race indicator variable.

Behavioral Health ED Visits at Acute-Care Hospitals by Race/Ethnicity Per 100,000 Population

Year	Black/ African American	White	Hispanic/ Latino of any race	All other racial/ethnic groups and multiple races	Massachusetts
2016	3349.7	2064.3	1811.6	513.7	1909.5
2017	3435.9	2104.6	1858.7	578.6	1956.9
2018	3718.4	2168.0	2083.5	512.0	2037.6
2019	4004.8	2094.5	2010.8	792.1	2034.7
2020	3749.7	1766.0	1833.2	772.3	1771.1
2021	3663.7	1801.1	1965.8	673.2	1792.8
2022	3513.1	1650.6	1884.9	595.1	1660.7

3.2.7 Behavioral health ED visits that result in ED Boarding

For exhibit "**Percent of Behavioral Health-Related ED Visits that Resulted in Boarding by Type, 2020-2022"** and exhibit **"Percent of Behavioral Health-Related ED Visits that Resulted in Boarding by Age, 2020-2022",** the HPC used CHIA's Acute Care Hospital

Emergency Discharge Database. Behavioral health ED visits were defined as any ED visit with a primary diagnosis classified as "mental, behavioral, or neurodevelopmental disorders" from AHRQ's Clinical Classification Software Refined (CCSR). ED boarding was defined as any visit with a length of stay exceeding 12 hours. Due to missing or incomplete length of stay data, 3 hospitals were excluded.

3.2.8 Opioid-related Acute Care Hospital Utilization

For exhibit **"Opioid-related Acute Care Hospital Utilization per 100,000 Population, 2019"**, HPC used data from AHRQ FastStats opioid-related hospital utilization. Only states that had data reported for both ED and inpatient visits were used in these analyses.

For exhibit **"Number of Opioid-related ED visits and inpatient stays (combined) at Acute Care Hospitals, 2016-2022"** and exhibit **"Massachusetts Opioid-Related ED Visits and Inpatient Stays (Combined) by Race/Ethnicity per 100,000 residents, 2016-2022"**, the HPC used AHRQ's list of diagnosis codes for opioid-related hospitalizations. HPC examined both primary and secondary diagnoses for opioid-related diagnoses, and excluded secondary diagnoses that indicated that a patient was not an active condition (e.g., in remission).

The following ICD-10-CM codes were used to identify opioid-related visits:

- F11 series: Opioid-related disorders
    - All codes are included except F11.11, F11.21, and F11.91
- T40 series: Poisoning by, adverse effect of, and underdosing of narcotics
        - 0X1, 0X2, 0X3, 0X4, 0X5: Opium
        - 1X1, 1X2, 1X3, 1X4: Heroin
        - 2X1, 2X2, 2X3, 2X4, 2X5: Other opioids
        - 3X1, 3X2, 3X3, 3X4, 3X5: Methadone
        - 4X1, 4X2, 4X3, 4X4, 4X5: Other synthetic narcotics (through 2020 Q3)
        - 411, 412, 413, 414, 415: Fentanyl or fentanyl analogs (beginning 2020 Q4)
        - 421, 422, 423, 424, 425: Tramadol (beginning 2020 Q4)
        - 491, 492, 493, 494, 495: Other synthetic narcotics (beginning 2020 Q4)
        - 601, 602, 603, 604, 605: Unspecified narcotics
        - 691, 692, 693, 694, 695: Other narcotics
    - Codes with a sixth digit of "6", indicating underdosing, are excluded