Qlarant

Maryland
DEPARTMENT OF HEALTH

HealthChoice
Maryland's Medicaid Managed Care Program

Medicaid Managed Care Organization

Encounter Data Validation Final Report

Calendar Year 2019

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Encounter Data Validation Report

Calendar Year 2019

Introduction and Purpose

The Medicaid Managed Care provisions of the Balanced Budget Act of 1997 (BBA) directed the U.S. Department of Health and Human Services to develop protocols to serve as guidelines for conducting external quality review organization (EQRO) activities. Beginning in 1995, the Centers for Medicare and Medicaid Services (CMS) began developing a series of tools to help state Medicaid agencies collect, validate, and use encounter data for managed care program oversight. CMS strongly encourages states to contract with EQROs to conduct encounter data validation (EDV) to ensure the overall validity and reliability of its encounter data. Validation of encounter data provides the State with a level of confidence in the completeness and accuracy of encounter data submitted by the managed care organizations (MCOs).

According to CMS, encounter data identifies when a provider rendered a specific service under a managed care delivery system. States rely on valid and reliable encounter data submitted by MCOs to make key decisions, establish goals, assess and improve quality of care, monitor program integrity, and determine capitation rates. As payment methodologies evolve and incorporate value-based payment elements, collecting complete and accurate encounter data is critical.

In compliance with the BBA, the Maryland Department of Health (MDH) contracts with Qlarant to serve as the EQRO for the HealthChoice Program. Qlarant conducted EDV for calendar year (CY) 2019, encompassing January 1, 2019 through December 31, 2019, for all nine HealthChoice MCOs:

- Aetna Better Health of Maryland (ABH)
- AMERIGROUP Community Care (ACC)
- Jai Medical Systems, Inc. (JMS)
- Kaiser Permanente of the Mid-Atlantic States, Inc. (KPMAS)
- Maryland Physicians Care (MPC)
- MedStar Family Choice, Inc. (MSFC)
- Priority Partners (PPMCO)
- UnitedHealthcare Community Plan (UHC)
- University of Maryland Health Partners (UMHP)

Methodology

Qlarant conducted EDV in accordance with the *CMS External Quality Review (EQR) Protocol 5*, *Validation of Encounter Data Reported by the Medicaid and CHIP Managed Care Plan.*[1] To assess the completeness and accuracy of encounter data, Qlarant completed the following activities:

1. **Reviewed state requirements for collecting and submitting encounter data.** Qlarant reviewed MDH contractual requirements for encounter data collection and submission to ensure the MCOs followed the State's specifications in file format and encounter types.

2. **Reviewed the MCO's capability to produce accurate and complete encounter data.** Qlarant completed an evaluation of the MCO's Information Systems Capabilities Assessment (ISCA) to

[1] CMS EQRO Protocols

determine whether the MCO's information system is able to collect and report high quality encounter data.

3. **Analyzed MCO electronic encounter data for accuracy and completeness.** MDH has elected to have Activity 3 completed by The Hilltop Institute, University of Maryland Baltimore County (Hilltop).

4. **Reviewed medical records for confirmation of findings of encounter data analysis.** Qlarant's certified coders/nurse reviewers compared electronic encounter data to medical record documentation to confirm the accuracy of reported encounters. A random sample of encounters for inpatient, outpatient, and office visit claims were reviewed to evaluate if the electronic encounter was documented in the medical record and the level of documentation supported the billed service codes. Reviewers further validated the date of service, place of service, and primary and secondary diagnoses and procedure codes, and if applicable, revenue codes.

5. **Submitted findings to the State.** Qlarant prepared this report for submission to MDH, which includes results, strengths, and recommendations.

Results

State Requirements for Collecting and Submitting Encounter Data

Qlarant reviewed information regarding MDH's requirements for collecting and submitting encounter data. MDH provided Qlarant with:

- MDH's requirements for collecting and submitting encounter data by MCOs, including specifications in the contracts between the State and the MCO.
- Data submission format requirements for MCOs
- Requirements specifying the types of encounters that must be validated
- MDH's abridged data dictionary
- A description of the information flow from the MCO to the State, including the role of any contractors or data intermediaries
- MDH's standards for encounter data completeness and accuracy
- A list and description of edit checks built into MDH's Medicaid Management Information System (MMIS) that identifies how the system treats data that fails edit checks
- Requirements regarding time frames for data submission
- Prior year's EQR report on validating encounter data
- Any other information relevant to encounter data validation

MDH sets forth the requirements for collection and submission of encounter data by MCOs in Appendix H of the MCO's contract. It includes all Code of Maryland Regulations (COMAR) provisions applicable to MCOs, including regulations concerning encounter data. Regulations applying to encounters in CY 2019 are noted in Table 1.

Table 1. CY 2019 COMAR Requirements for Encounter Data

COMAR	Requirement
10.67.03.11B	A description of the applicant's operational procedures for generating service-specific encounter data.
10.67.03.11C	Evidence of the applicant's ability to report, on a monthly basis, service-specific encounter data in UB04 or CMS1500 format.
10.67.07.03A(1)	MCOs shall submit to MDH the following: Encounter data in the form and manner described in COMAR 10.67.04.15B, 42 CFR §438.242(c), and 42 CFR §438.818.
10.67.07.03B	MCOs shall report to MDH any identified inaccuracies in the encounter data reported by the MCOs or its subcontractors within 30 days of the date discovered regardless of the effect which the inaccuracy has upon MCOs reimbursement.
10.67.04.15B	Encounter Data • MCOs shall submit encounter data reflecting 100% of provider-enrollee encounters, in CMS1500 or UB04 format or an alternative format previously approved by MDH. • MCOs may use alternative formats including: o ASC X12N 837 and NCPDP formats; and o ASC X12N 835 format, as appropriate. • MCOs shall submit encounter data that identifies the provider who delivers any items or services to enrollees at a frequency and level of detail to be specified by CMS and MDH, including, at a minimum: o Enrollee and provider identifying information; o Service, procedure, and diagnosis codes; o Allowed, paid, enrollee responsibility, and third party liability amounts; and o Service, claims submissions, adjudication, and payment dates. • MCOs shall report encounter data within 60 calendar days after receipt of the claim from the provider. • MCOs shall submit encounter data utilizing a secure online data transfer system.

The electronic data interchange (EDI) is the automated system that includes rules dictating the transfer of data from each MCO to MDH. MDH uses the Health Insurance Portability and Accountability Act (HIPAA) EDI transaction sets and standards for data submission of 820, 834, 835, and 837 files. The 837 contains patient claim information, while the 835 contains the payment and/or explanation of benefits for a claim. MDH receives encounter data from the MCOs in a format that is HIPAA 837 compliant—via an EDI system— and are first edited for completeness and accuracy. All encounters are validated on two levels: first by performing Level 1 and Level 2 edits checks on 837 data using HIPAA EDI implementation guidelines; and second, within MMIS's; adjudication process.

MDH provided an abridged data dictionary and described the process of encounter data submission from the MCOs to the State. MCOs can submit encounter data through a web portal or through a secure file transfer protocol (SFTP). Each MCO may contract a vendor or use data intermediaries to perform encounter data submission.

Although MDH does not maintain a list and description of edit checks, the system treats encounters that fail the MMIS edit checks in the following manner:

1. All denied and rejected encounters appear with the MMIS Explanation of Benefit (EOB) code and description in the 8ER file, with one exception. EOB 101 is excluded from this report.
2. The 835 file contains all paid and denied encounters. Denied encounters use the HIPAA EDI Claim Adjustment Reason Codes (CARC) and Remittance Advice Remark Codes (RARC) to report back the denied reason. Encounters marked as suspended are not included in the 835.
3. In addition, MMIS generates a summary report for each MCO.

MDH sets forth requirements regarding time frames for data submission in COMAR 10.67.04.15B, which specifies that MCOs must report encounter data within 60 calendar days after receipt of the claim from the provider. For daily data exchanges, the cutoff time is 3 PM for transmission of a single encounter data file for an MCO to receive an 835 the next day.

MCO's Capability to Produce Accurate and Complete Encounter Data

Qlarant assessed each MCO's capability for collecting accurate and complete encounter data. Prior to examining the quality of data produced by the MCO's information system, each MCO's information system process and capabilities in capturing complete and accurate encounter data will be assessed through the following steps:

1. Review of the MCO's ISCA.
2. Interview MCO personnel, as needed.

The purpose of the ISCA review is to assess the MCO's information system capabilities to capture and assimilate information from multiple data sources. The documentation review also determines if the system may be vulnerable to incomplete or inaccurate data capture, integration, storage, or reporting. Documentation review findings are used to identify issues that may contribute to inaccurate or incomplete encounter data.

After reviewing the findings from the ISCA, Qlarant conducted follow-up interviews with MCO personnel, as needed, to supplement the information and ensure an understanding of the MCO's information systems and processes. No issues were identified. Results of the document review and interview process reveal:

- All MCOs appear to have well-managed systems and processes.
- All MCOs use only standard forms and coding schemes.
- All MCOs are capturing appropriate data elements for claims processing, including elements that identify the enrollee and the provider of service.
- All MCOs appear to have information systems and processes capable of producing accurate and complete encounter data.
- Six MCOs (ABH, ACC, KPMAS, PPMCO, UHC, and UMHP) process claims and encounters with in-house systems, while the remaining three MCOs (JMS, MSFC, and MPC) contract with third party administrators for processing claims and encounters.

- The HealthChoice MCO average rate for processing clean claims in 30 days was 97%, with MCO-specific rates ranging from 79% to 100%.
- On average, the HealthChoice MCOs received 89.84% of professional claims and 92.73% of facility claims electronically.

Analysis of MCO's Electronic Encounter Data for Accuracy and Completeness

MDH has an interagency governmental agreement with Hilltop to serve as the data warehouse for its encounters. Therefore, Hilltop completed Activity 3 of the EDV. Detailed results of Activity 3 can be found in **Appendix A**.

Activity 3 contains the following four required analyses steps:

1. Develop a data quality test plan based on data element validity requirements.
2. Verify the integrity of the MCOs' encounter data files.
3. Generate and review analytic reports.
4. Compare findings to state-identified standards.

Step 1. Develop a data quality test plan based on data element validity requirements

MDH initiated the evaluation of MCO encounter data with a series of validation checks on the encounter data received through the EDI. These validation checks include analysis of critical data fields, consistency between data points, duplication, and validity of data received. Encounters failing to meet these standards were reported to the MCOs, and both the 835 and the 8ER reports were returned to the MCOs for possible correction and re-submission.

MDH sent Hilltop the CY 2017 through CY 2019 8ER reports for analysis of encounters failing initial EDI edits (rejected encounters). Hilltop classified these rejected encounters into five categories: missing data, participant not eligible for service, value not valid for the field, inconsistent data, and duplicates. See Appendix A for a full list of rejection codes by each category for CY 2019 encounters.

Hilltop performed checks on critical fields for missing or invalid data, including provider number, units of service, drug number, drug quantity, revenue code, procedure code, and diagnosis code. Hilltop identified eligibility issues for participants not eligible for MCO services at the time of the service. Inconsistent data refers to an inconsistency between two data points. Examples of inconsistency include discrepancies between dates, inconsistencies between diagnosis and age or sex, and inconsistencies between original and re-submitted encounters.

Overall, the number of rejected encounters increased by 2.7 percent during the evaluation period. This increase may be attributed to the inclusion of ABH starting in the CY 2018 analysis. The two primary reasons encounters were rejected during the evaluation period were missing data and participants not eligible for MCO services. The percentage of encounters rejected due to participants not eligible for MCO services increased from 30.3 percent in CY 2017 to 43.0 percent in CY 2019, while the percentage rejected due to missing data decreased from 36.8 percent in CY 2017 to 31.5 percent in CY 2019. While invalid encounters increased slightly (2.7 percentage points) during the evaluation period, there was a notable decrease (10.8 percentage points) of encounters rejected for inconsistency.

Step 2. Verify the integrity of the MCOs' encounter data files.

During CY 2019, the MCOs submitted a total of 40.5 million accepted encounters (records), up from 38.5 and 39.9 million in CY 2017 and CY 2018, respectively. Although the above 8ER data received do not include dates of service, Hilltop estimated the total number of encounters submitted by summing the number of EDI rejected encounters and the number of accepted encounters. A total of approximately 40.3 million encounters were submitted in CY 2017, which increased to 42.4 million encounters submitted in CY 2019. Approximately 95 percent of the CY 2019 encounters were accepted into MMIS2, which is consistent with CY 2017 and CY 2018 encounters.

Hilltop received a monthly copy of all encounters accepted by MMIS2. Upon receipt of the accepted encounters, Hilltop performed several validation assessments and integrity checks of the data fields to analyze and interpret the accuracy and completeness of the data. The assessments included determining whether there is an invalid end date of service or other fatal errors. The files with errors were excluded before being imported into Hilltop's data warehouse.

The percentage of encounters was consistently distributed across claim types from CY 2017 to CY 2019. At 65.2 percent in CY 2017 and 66.4 percent in CY 2018 and CY 2019, physician claims represented most of the encounters during the evaluation period. Of all the encounters accepted into MMIS2 in CY 2019, pharmacy encounters and outpatient hospital encounters accounted for 28.6 percent and 4.2 percent, respectively. "Other" encounters—including inpatient hospital stays, community-based services, long-term care services, and dental services—accounted for 0.8 percent of encounters in CY 2017 through CY 2019.

Step 3. Generate and review analytic reports.

Time Dimension Analysis

Effective analysis of the Medicaid program requires complete, accurate, and timely processing of encounter data. The processing time of encounters spans the interval between the end date of service and when the encounter is submitted to MDH. Once a provider has rendered a service, that provider is required to invoice the MCO within 6 months. The MCO must then adjudicate the encounter within 30 days of being invoiced.[2, 3] Maryland regulations require MCOs to submit encounter data to MDH "within 60 calendar days after receipt of the claim from the provider."[4] Therefore, the maximum acceptable processing time allotted for an encounter between the end date of service and the date of submission to MDH is 8 months. The Medicaid program requires MCOs to submit encounters in a timely fashion; however, delays in submission occur, and some variation from month to month is expected. Noticeable changes related to timeliness may indicate irregular submission of encounter data.

The majority of MCOs submitted encounters to MDH within 1 to 2 days of the end date of service, followed by 8 to 31 days, and 3 to 7 days. Very few encounters were submitted more than 6 months past the end date of service.

A greater number of MCOs submitted encounters within 1 to 2 days in CY 2019 than in CY 2017 and CY 2018. There was a small increase in encounters submitted within 3 to 7 days and a small increase in

[2] Md. Code Ann., Health-Gen. §15-102.3.
[3] Md. Code Ann., Health-Gen. §15-1005.
[4] COMAR 10.67.04.15(B)(4).

encounters submitted within 8 to 31 days in CY 2019, which could signify a positive trend for submission timeliness.

The majority of pharmacy encounters were submitted within 1 to 2 days of the end date of service for CY 2017 through CY 2019 (76.4, 82.1, and 83.9 percent, respectively), and over 75 percent of all physician encounters were submitted within 31 days (75.9, 76.5, and 79.5 percent, respectively). Nearly all claim types in CY 2019 had a higher percentage of encounters submitted within 1 to 2 days and 3 to 7 days than in CY 2017.

Across all months, timeliness of encounter submissions remained relatively consistent. For all encounters submitted in CY 2019, an average of 46.1 percent were processed by MDH within 1 to 2 days of the end date of service: an increase from 43.5 in CY 2018 and 41.3 in CY 2017. The increase in encounters submitted within 1 to 2 days could signify a positive trend for submission timeliness.

Provider Analysis

Evaluating encounters by provider type for fluctuations across MCOs contributes to the assessment of encounter data volume and consistency. The following provider analysis examines encounter data for PCPs and establishes a comparison rate of PCP visits in HealthChoice.

During CY 2019, the percentage of participants with a visit to their assigned PCP, group practice, or partner PCP for each MCO was between 24.8 percent (PPMCO) and 61.8 percent (ACC) (excluding ABH). Using the broadest definition of a PCP visit—a visit to any PCP within any MCO's network—the MCOs' percentage of participants with at least one PCP visit ranged from 60.6 percent (UMHP) to 76.0 percent (ACC) (excluding ABH). From CY 2017 to CY 2019, the overall percentage of participants with a visit to their assigned PCP and assigned PCP, group practice, or partner PCP decreased by 1.6 and 0.1 percentage points, respectively. The percentage of participants with a visit to any PCP within any MCO's network increased by 4 percentage points during the evaluation period.

Service Type Analysis

The analysis of CY 2017 and CY 2018 inpatient hospitalizations, ED visits, and observation stays serves as baseline data to compare trends to CY 2019 encounter data. For this analysis, a visit is defined as one encounter per person per provider per day. MCOs reported a consistent distribution of visits by service type for all years of the evaluation period. The percentage for both the total inpatient hospitalizations and observation stays combined were less than 1.0 percent of visits each year. ED visits, which were 3.6 percent of all visits in CY 2019, ranged from 2.0 percent of all visits to 5.0 percent of all visits. The overall percentage of the HealthChoice participants with an outpatient ED Visit decreased between CY 2014 and CY 2018 (The Hilltop Institute, 2020).

Analysis by Age and Sex

Hilltop conducted an analysis of encounter data submitted by MCOs to determine the effectiveness of encounter data edit checks between CY 2017 and CY 2019. The three areas analyzed were 1) individuals over age 65 with encounters (because this population is ineligible for HealthChoice), 2) age-appropriate and sex-appropriate diagnoses for delivery, and 3) age-appropriate dementia diagnoses. There are expected age ranges for delivery and dementia used to identify potential outliers within MMIS2 encounter data. High percentages of participants with these diagnoses outside of the established appropriate sex and age range could indicate potential errors within the data. Hilltop identified few outliers and provided individual-level reports to MDH for further investigation.

Because participants older than 65 are ineligible for HealthChoice, Hilltop searched for any encounters for those aged 66 or older. In CY 2019, across all MCOs, encounters were submitted for fewer than 11 participants who were 66 or older or who did not have a reported date of birth; this is less than what was reported in CY 2017 (44). The MCOs and MDH improved the quality of reporting encounter data for age-appropriate diagnoses in CY 2019.

The next analysis checked the percentage of participants who had a diagnosis for delivery by age group between CY 2017 and CY 2019. Participants aged 0 to 12 and 51 or older are typically considered to be outside of the expected age range for delivery. This analysis only considers female participants with a delivery diagnosis. Across all MCOs, the number of female participants identified as delivering outside of the expected age ranges was 61 in CY 2017, 47 in CY 2018, and 64 in CY 2019. The data substantiate that the encounters are age-appropriate for delivery.

Hilltop also validated encounter data for delivery diagnoses being sex-appropriate. A diagnosis for delivery should typically be present on encounters for female participants. All MCOs have similar distribution, with nearly 100 percent of all deliveries being reported for females. Delivery diagnoses for male participants in the encounter data are negligible, accounting for only 30 reported deliveries across all MCOs in CY 2019, a decrease from what was reported in CY 2017 (43) and CY 2018 (40).

The final analysis focused on age-appropriate diagnoses of dementia from CY 2017 to CY 2019. While dementia is a disease generally associated with older age, early onset can occur as early as 30 years of age. Thus, the prevalence of dementia diagnoses should increase with age after 30. Hilltop identified the number of participants under the age of 30 having an encounter with a dementia code compared to those aged 30 or older. As expected, the majority (89.2 percent) of participants with a diagnosis of dementia are aged 30 or older. While each MCO does have participants under the age of 30 with a dementia diagnosis, the numbers are relatively small (341 participants were reported across all MCOs in CY 2019).

Step 4. Compare findings to state-identified standards.

In both Steps 2 and 3, Hilltop compared the encounter data submitted by each MCO to benchmarks identified by MDH. Hilltop performed the analyses by MCO and calendar years to benchmark each MCO against its own performance over time as well as against other MCOs. Hilltop also identified and compared outlier data with overall trends noted among the MCOs.

Analysis of Medical Records to Confirm Encounter Data Accuracy

Review of enrollees' medical records offers another method to examine the completeness and accuracy of encounter data. Using the encounter/claims data file prepared by MDH's vendor (Hilltop), Qlarant identified all enrollees with an inpatient, outpatient, and office visit service claim. The sample size was selected to ensure a 90% confidence interval with a 5% +/- error rate for sampling. Oversampling was used in order to ensure adequate numbers of medical records were received to meet the required sample size. Hospital inpatient and outpatient encounter types were oversampled by 300%, while office visit encounter types were oversampled by 400% for each MCO.

Records were requested directly from the billing providers. Qlarant mailed each sampled provider a letter with the specific record request, which included patient name, medical assistance identification

(ID) number, date of birth, date(s) of service, and treatment setting. Providers were asked to securely submit medical record information to Qlarant with the following instructions:

- Identify documentation submitted for each patient using: patient first and last name, medical assistance ID number, date of birth, age, gender, and provider name.
- Include all relevant medical record documentation to ensure receipt of adequate information for validating service codes (a list of recommended documentation was provided for reference).

Table 2 provides trending for the total number of encounters by sample size and encounter type.

Table 2. CY 2017 through CY 2019 EDV Sample by Encounter Type

Encounter Type	CY 2017	CY 2018	CY 2019
	Sample Size		
Inpatient	48 (2%)	60 (2%)	62 (2%)
Outpatient	467 (22%)	531 (22%)	536 (22%)
Office Visit	1,653 (76%)	1,853 (76%)	1,854 (76%)
Total	**2,168**	**2,444**	**2,452**

Compared to CY 2017, the total number of records reviewed was higher in CYs 2018 and 2019, which was due to the addition of a new MCO (ABH) in CY 2018. The majority of encounters were office visits (76%), followed by outpatient encounters (22%), and inpatient encounters making up the smallest portion (2%).

Table 3 outlines the total number of records reviewed and required by MCO and encounter type.

Table 3. CY 2019 MCO EDV Medical Record Review Response Rates by Encounter Type

MCO	Inpatient Records			Outpatient Records			Office Visit Records		
	# Reviewed	Minimum Reviews Required	Sample Size Achieved?	# Reviewed	Minimum Reviews Required	Sample Size Achieved?	# Reviewed	Minimum Reviews Required	Sample Size Achieved?
ABH	9	8	Yes	59	59	Yes	205	205	Yes
ACC	5	5	Yes	60	60	Yes	207	207	Yes
JMS	8	8	Yes	86	86	Yes	178	178	Yes
KPMAS	5	5	Yes	16	16	Yes	253	251	Yes
MPC	6	6	Yes	64	63	Yes	204	204	Yes
MSFC	6	6	Yes	58	58	Yes	209	209	Yes
PPMCO	6	6	Yes	65	65	Yes	206	201	Yes
UHC	7	7	Yes	65	64	Yes	202	202	Yes
UMHP	11	11	Yes	65	65	Yes	213	197	Yes
Total	**63**	**62**	**Yes**	**538**	**536**	**Yes**	**1,877**	**1,854**	**Yes**

All MCOs submitted a sufficient number of medical records to meet the minimum samples required for each setting type of the encounter data review.

Medical records received were verified against the sample listing and enrollee demographics information from the data file to ensure consistency between submitted encounter data and

corresponding medical records. Documentation was noted in the database as to whether the diagnosis, procedure, and if applicable, revenue codes were substantiated by the medical record. Qlarant defines findings of consistency in terms of match, no match, and invalid as shown below:

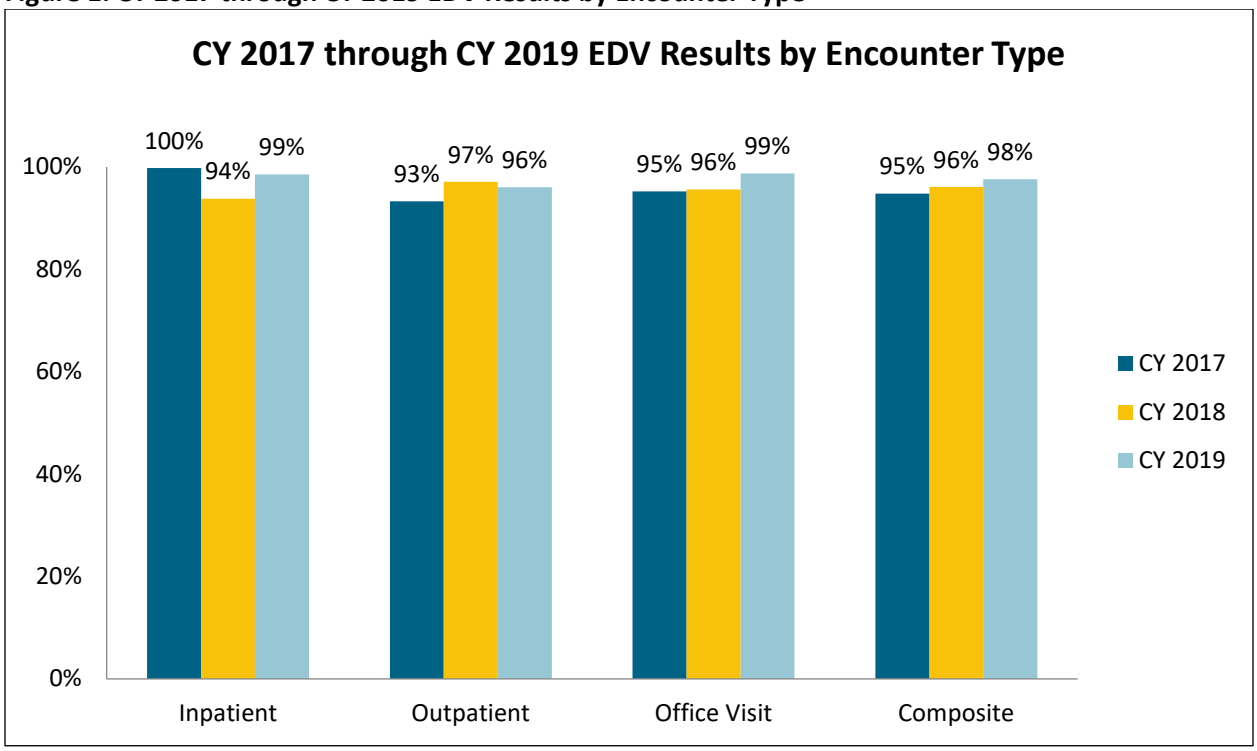
- **Match** - Determinations were made as a "match" when documentation was found in the record.
- **No Match** - When there was a lack of documentation in the record, coding error(s), or upcoding.
- **Invalid** - A medical record that was not legible or could not be verified against the encounter data by patient name, account number, gender, date of birth, or date(s) of service, the reviewer ended the review process.

For inpatient encounters, the medical record reviewers also matched the principal diagnosis code to the primary sequenced diagnosis. All diagnosis codes, procedure codes, and revenue codes included in the data were validated per record for the EDV.

For CY 2019, Qlarant received 2,576 medical records collectively from all nine MCOs. Of the total received records, 4% (98) were deemed invalid. Of the 98 invalid records, 80% (78) were for office visits setting, 11% (11) and 9% (9) were for outpatient and inpatient respectively.

A total of 2,478 medical records were reviewed, slightly more than the 2,452 minimum review required. Analysis of the data was organized by review elements including diagnosis, procedure, and revenue codes (applicable only for inpatient and outpatient). Overall EDV results for CY 2017 through CY 2019 by encounter type are displayed in Figure 1.

Figure 1. CY 2017 through CY 2019 EDV Results by Encounter Type



The composite match rate across all encounter types showed continuous improvement over the three-year period ranging from 95% to 98%.

Table 4 provides trending of the EDV records for CY 2017 through CY 2019 by encounter type.

Table 4. CY 2017 through CY 2019 EDV Results by Encounter Type

Encounter Type	Records Reviewed			Total Possible Elements*			Total Matched Elements			Percentage of Matched Elements		
	CY 2017	CY 2018	CY 2019	CY 2017	CY 2018	CY 2019	CY 2017	CY 2018	CY 2019	CY 2017	CY 2018	CY 2019
Inpatient	48	60	63	1,005	1,289	1,434	1,003	1,209	1,413	100%	94%	99%
Outpatient	474	575	538	5,479	7,386	7,288	5,113	7,170	7,000	93%	97%	96%
Office Visit	1,695	1,871	1,877	7,269	8,597	8,833	6,921	8,220	8,718	95%	96%	99%
Total	**2,217**	**2,506**	**2,478**	**13,753**	**17,272**	**17,555**	**13,037**	**16,599**	**17,131**	**95%**	**96%**	**98%**

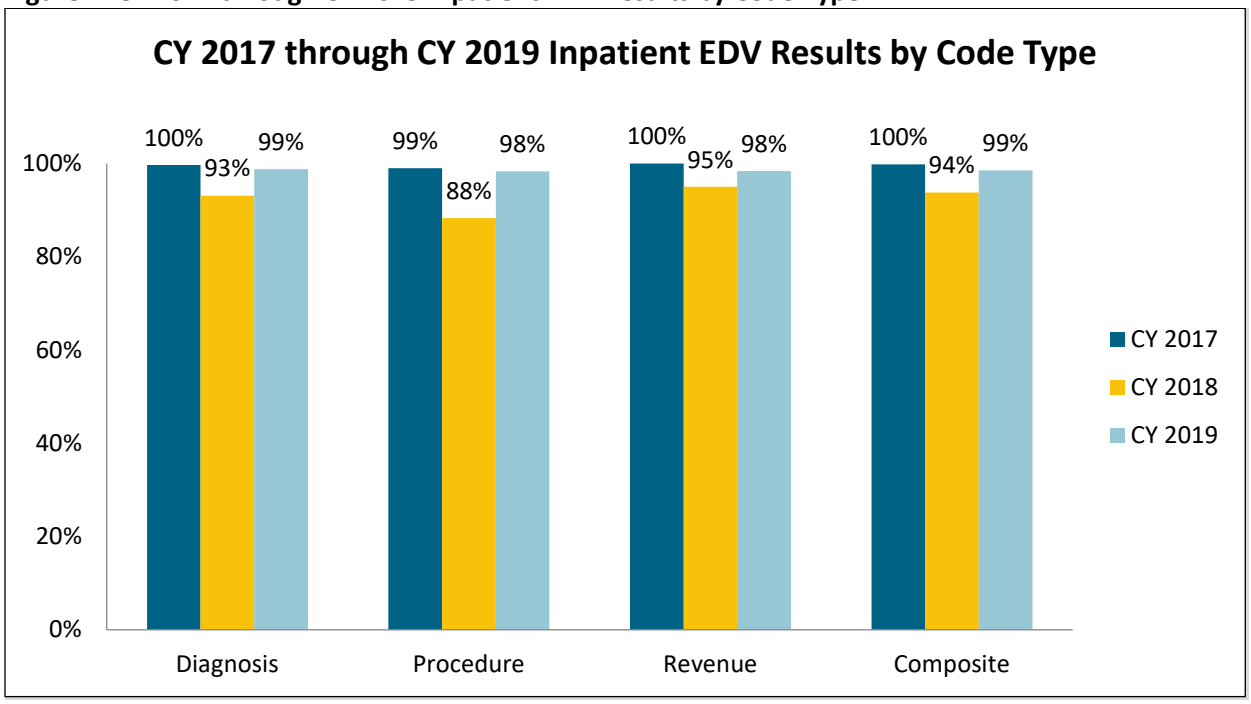
*Possible elements include diagnosis, procedure, and revenue codes.
Note: Values reported are rounded to the nearest percentage for reporting only.

Compared to CY 2018, CY 2019 match rates for the inpatient setting increased by 5 percentage points and the office visit setting increased by 3 percentage points, while outpatient match rates declined by 1 percentage point.

Inpatient Encounters

Inpatient EDV results by code type for CY 2017 through CY 2019 are displayed in Figure 2.

Figure 2. CY 2017 through CY 2019 Inpatient EDV Results by Code Type



Overall, the CY 2019 composite inpatient encounter match rate (99%) across all code types increased by 5 percentage points from CY 2018 (94%) but decreased by 1 percentage point from CY 2017 (100%).

Table 5 provides trending of EDV inpatient encounter type results by code from CY 2017 through CY 2019.

Table 5. CY 2017 through CY 2019 EDV Inpatient Encounter Type Results by Code

Inpatient Encounter Type	Diagnosis Codes			Procedure Codes			Revenue Codes			Total Codes		
	CY 2017	CY 2018	CY 2019	CY 2017	CY 2018	CY 2019	CY 2017	CY 2018	CY 2019	CY 2017	CY 2018	CY 2019
Match	328	446	509	103	83	115	572	680	789	1,003	1,209	1,413
No Match	1	33	6	1	11	2	0	36	13	2	80	21
Total	329	479	515	104	94	117	572	716	802	1,005	1,289	1,434
Match Percent	**100%**	**93%**	**99%**	**99%**	**88%**	**98%**	**100%**	**95%**	**98%**	**100%**	**94%**	**99%**

Note: Values reported are rounded to the nearest percentage for reporting only.

The CY 2019 diagnosis code match rate (99%) increased by 6 percentage points from CY 2018 (93%) and decreased by 1 percentage point from CY 2017 (100%).

The CY 2019 procedure code match rate (98%) registered the biggest increase for this setting type of 10 percentage points from CY 2018 (88%) and is 1 percentage point lower than CY 2017 (99%).

The CY 2019 revenue code match rate of 98% increased by 3 percentage points from the CY 2018 rate of 95% and was a 2 percentage point decrease from the CY 2017 rate of 100%.

The CY 2019 MCO-specific inpatient results by code type are shown in Table 6.

Table 6. MCO Inpatient Results by Code Type

MCO	# of Reviews	Diagnosis Codes			Procedures Codes			Revenue Codes			Total Codes		
		Match	Total	%	Match	Total	%	Match	Total	%	Match	Total	%
ABH	9	51	51	100%	22	22	100%	95	96	99%	168	169	99%
ACC	5	33	33	100%	4	4	100%	50	55	91%	87	92	95%
JMS	8	90	90	100%	26	26	100%	127	127	100%	243	243	100%
KPMAS	5	27	27	100%	12	12	100%	50	50	100%	89	89	100%
MPC	6	62	62	100%	7	7	100%	88	88	100%	157	157	100%
MSFC	6	60	61	98%	16	16	100%	100	100	100%	176	177	99%
PPMCO	6	40	40	100%	6	7	86%	60	60	100%	106	107	99%
UHC	7	60	60	100%	6	6	100%	90	90	100%	156	156	100%
UMHP	11	86	91	95%	16	17	94%	129	136	95%	231	244	95%

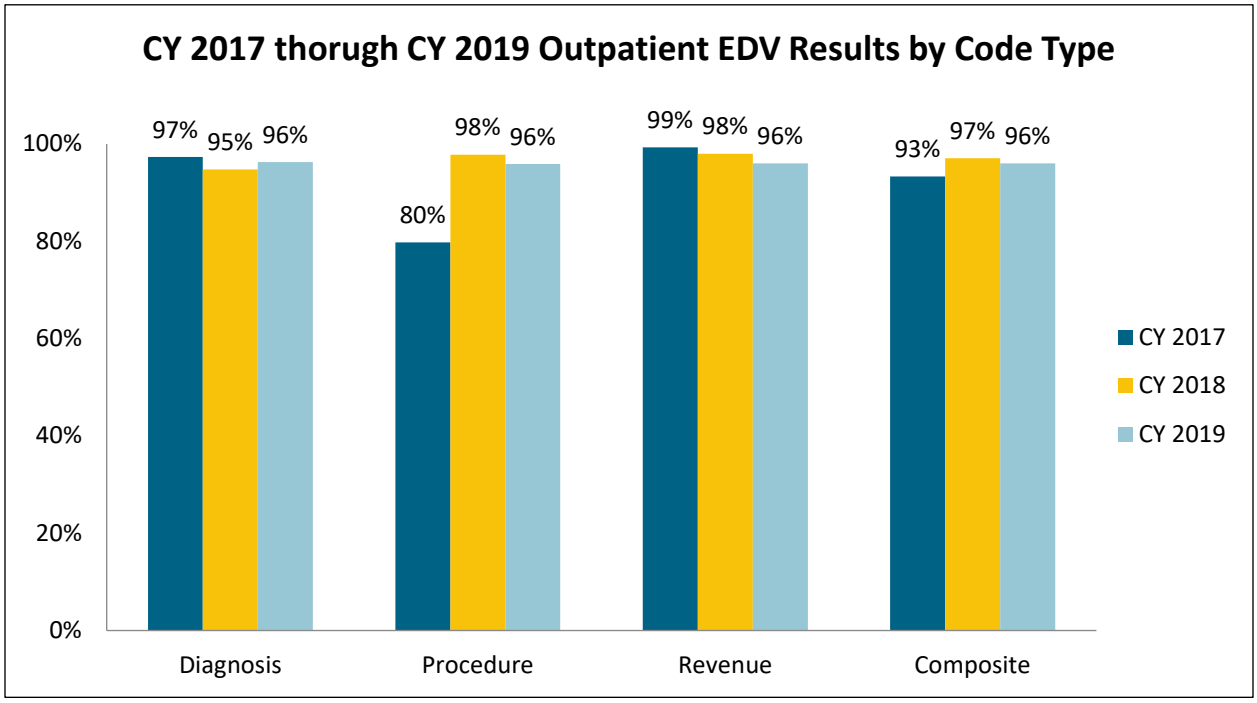
Note: Values reported are rounded to the nearest percentage for reporting only.

Seven of the nine MCOs (all except ACC and UMHP) achieved a match rate of 99% or greater for inpatient encounters across all code types. ACC and UMHP both achieved 95%.

Outpatient Encounters

Outpatient EDV results by code type for CY 2017 through CY 2019 are displayed in Figure 3.

Figure 3. CY 2017 through CY 2019 Outpatient EDV Results by Code Type



Overall, the total match rate for outpatient encounters across all code types decreased by 1 percentage point from 97% in CY 2018 to 96% in CY 2019 and increased by 3 percentage points from the CY 2017 rate of 93%.

Table 7 provides trending of EDV outpatient encounter type results by code from CY 2017 through CY 2019.

Table 7. CY 2017 through CY 2019 EDV Outpatient Encounter Type Results by Code

Outpatient Encounter Type	Diagnosis Codes			Procedure Codes			Revenue Codes			Total Codes		
	CY 2017	CY 2018	CY 2019	CY 2017	CY 2018	CY 2019	CY 2017	CY 2018	CY 2019	CY 2017	CY 2018	CY 2019
Match	1,597	1,903	1,782	1,206	2,475	2,447	2,310	2,792	2,771	5,113	7,170	7,000
No Match	44	104	68	305	56	104	17	56	116	366	216	288
Total	1,641	2,007	1,850	1,511	2,531	2,551	2,327	2,848	2,887	5,479	7,386	7,288
Match Percent	**97%**	**95%**	**96%**	**80%**	**98%**	**96%**	**99%**	**98%**	**96%**	**93%**	**97%**	**96%**

Note: Values reported are rounded to the nearest percentage for reporting only.

The CY 2019 outpatient diagnosis code match rate of 96% increased by 1 percentage point from CY 2018 (95%) and remains below CY 2017 (97%).

Outpatient procedure code match rates have fluctuated from CY 2017 to CY 2019 with CY 2019 (96%) decreasing by 2 percentage points from CY 2018 (98%) yet maintaining 16 percentage points above CY 2017 (80%).

Outpatient revenue code match rate has a negative trend year after year from CY 2017 to CY 2019.

The CY 2019 MCO-specific outpatient results by code type are shown in Table 8.

Table 8. MCO Outpatient Results by Code Type

MCO	# of Reviews	Diagnosis Codes			Procedure Codes			Revenue Codes			Total Codes		
		Match	Total	%	Match	Total	%	Match	Total	%	Match	Total	%
ABH	59	164	169	97%	271	284	95%	301	316	95%	736	769	96%
ACC	60	167	173	97%	253	256	99%	279	285	98%	699	714	98%
JMS	86	357	372	96%	408	421	97%	455	469	97%	1,220	1,262	97%
KPMAS	16	49	51	96%	104	105	99%	108	109	99%	261	265	99%
MPC	64	217	227	96%	290	296	98%	362	371	98%	869	894	97%
MSFC	58	179	180	99%	266	306	87%	314	359	88%	759	845	90%
PPMCO	65	207	224	92%	240	246	98%	257	263	98%	704	733	96%
UHC	65	210	219	96%	321	340	94%	371	388	96%	902	947	95%
UMHP	65	232	235	99%	294	297	99%	324	327	99%	850	859	99%

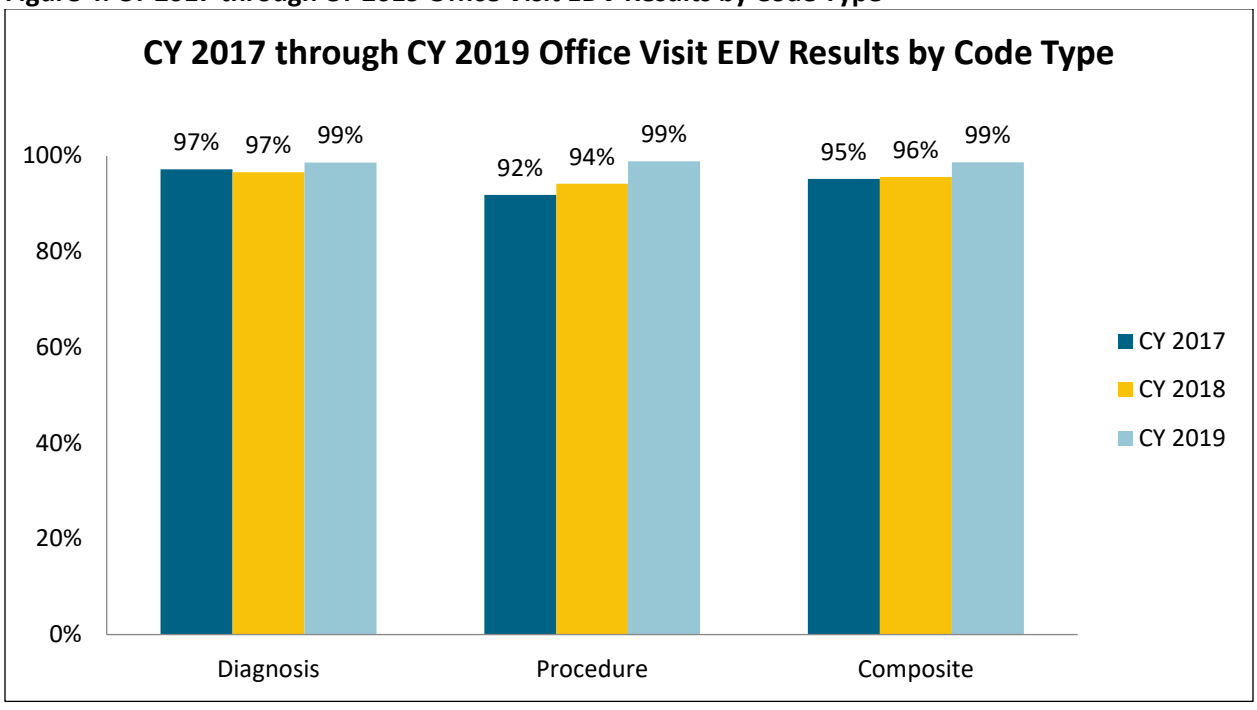
Note: Values reported are rounded to the nearest percentage for reporting only.

MCOs' total match rate across all code types ranged from 90% (MSFC) to 99% (KPMAS and UMHP).

Office Visit Encounters

Office visit EDV results by code type for CY 2017 through CY 2019 are displayed in Figure 4.

Figure 4. CY 2017 through CY 2019 Office Visit EDV Results by Code Type



Overall, the CY 2019 office visit match rate (99%) increased by 3 percentage points from CY 2018 (96%) and 4 percentage points from CY 2017 (95%). The overall composite rate has a positive trend year after year.

Table 9 provides trending of EDV office visit encounter type results by code from CY 2017 through CY 2019.

Table 9. CY 2017 through CY 2019 EDV Office Visit Encounter Type Results by Code*

Office Visit Encounter Type	Diagnosis Codes			Procedure Codes			Total		
	CY 2017	CY 2018	CY 2019	CY 2017	CY 2018	CY 2019	CY 2017	CY 2018	CY 2019
Match	4,405	4,991	5,245	2,516	3,229	3,473	6,921	8,220	8,718
No Match	125	178	76	223	199	39	348	377	115
Total Elements	4,530	5,169	5,321	2,739	3,428	3,512	7,269	8,597	8,833
Match Percent	**97%**	**97%**	**99%**	**92%**	**94%**	**99%**	**95%**	**96%**	**99%**

*Revenue codes are not applicable for office visit encounters.

Note: Values reported are rounded to the nearest percentage for reporting only.

The CY 2019 diagnosis code match rate (99%) increased by 2 percentage points from both CYs 2018 and 2017 (97%).

The procedure code match rate improved by 5 percentage points from 94% in CY 2018 to 99% in CY 2019 and remains well above the 92% rate in CY 2017; hence, it resulted in a positive trend over a three-year period.

The CY 2019 MCO-specific office visit match rates by code type are shown in Table 10.

Table 10. MCO Office Visit Results by Code Type*

MCO	# of Reviews	Diagnosis Codes			Procedure Codes			Total Codes		
		Match	Total	%	Match	Total	%	Match	Total	%
ABH	205	597	608	98%	365	367	100%	962	975	99%
ACC	207	546	569	96%	434	443	98%	980	1012	97%
JMS	178	535	535	100%	282	283	100%	817	818	100%
KPMAS	253	680	686	99%	454	458	99%	1,134	1,144	99%
MPC	204	613	616	100%	385	386	100%	998	1002	100%
MSFC	209	622	629	99%	381	386	99%	1,003	1,015	99%
PPMCO	206	544	553	98%	371	382	97%	915	935	98%
UHC	202	520	533	98%	370	374	99%	890	907	98%
UMHP	213	588	592	99%	431	433	100%	1,019	1,025	99%

*Revenue codes are not applicable for office visit encounters.

Note: Values reported are rounded to the nearest percentage for reporting only.

For office visit encounters, all nine MCOs scored well above 90% in both diagnosis codes and procedure codes match rates, and yielded high overall match rates ranging from 97% (ACC) to 100% (JMS and MPC).

Table 11 illustrates the reasons for "no match" errors by encounter types.

Table 11. CY 2017 through CY 2019 Reasons for "No Match" by Encounter Type

Encounter Type	CY 2017							CY 2018							CY 2019						
	Coding Error		Lack of Documentation		Upcoding		Total Elements	Coding Error		Lack of Documentation		Upcoding		Total Elements	Coding Error		Lack of Documentation		Upcoding		Total Elements
	#	%	#	%	#	%	#	#	%	#	%	#	%	#	#	%	#	%	#	%	#
Diagnosis																					
Inpatient	1	100%	0	0%	N/A	N/A	1	2	6%	31	94%	N/A	N/A	33	1	17%	5	83%	N/A	N/A	6
Outpatient	44	100%	0	0%	N/A	N/A	44	16	15%	88	85%	N/A	N/A	104	4	6%	64	94%	N/A	N/A	68
Office Visit	123	98%	2	2%	N/A	N/A	125	39	22%	139	78%	N/A	N/A	178	26	34%	50	66%	N/A	N/A	76
Procedure																					
Inpatient	1	100%	0	0%	N/A	N/A	1	4	36%	7	64%	0	0%	11	1	50%	1	50%	N/A	N/A	2
Outpatient	305	100%	0	0%	N/A	N/A	305	9	16%	45	80%	2	4%	56	1	1%	103	99%	N/A	N/A	104
Office Visit	179	80%	44	20%	N/A	N/A	223	104	52%	74	37%	21	11%	199	8	21%	31	79%	N/A	N/A	39
Revenue																					
Inpatient	0	0%	0	0%	N/A	N/A	0	0	0%	36	100%	0	0%	36	0	0%	13	100%	N/A	N/A	13
Outpatient	16	94%	1	6%	N/A	N/A	17	11	20%	44	79%	1	2%	56	4	3%	112	97%	N/A	N/A	116

Not Applicable (N/A)

Lack of documentation accounted for the majority of all diagnosis, procedure, and revenue code mismatches in CY 2019. This is similar to CY 2018 but a substantial change from CY 2017 when the majority of mismatches resulted from coding errors.

In CY 2019, 83% of mismatched diagnosis codes for inpatient encounters, 94% for outpatient encounters, and 66% of office visit encounters were due to lack of documentation. Coding errors accounted for 17% of inpatient encounter mismatches, 6% of outpatient mismatches, and 34% of the office visit mismatches.

For procedure codes in CY 2019, 50% of inpatient encounters, 99% of outpatient encounters, and 79% of office visit encounters were mismatched due to lack of documentation. Coding errors accounted for 50% of inpatient encounter mismatches, 1% of outpatient mismatches, and 21% of the office visit procedure code mismatches.

Lack of documentation resulted in 100% of the mismatched revenue codes for inpatient encounters and 97% for outpatient encounters. Coding errors accounted for 3% of outpatient encounter revenue code mismatches. No inpatient encounter revenue codes were mismatched for coding errors.

MCO Encounter Data Validation Results by Encounter Type

For CY 2019, all HealthChoice MCOs successfully achieved match rates that equal or score above the standard of 90% in all areas of review.

Table 12 illustrates MCO and HealthChoice Aggregate (HealthChoice) match rates from CY 2017 through CY 2019 for inpatient, outpatient, and office visit encounters.

Table 12. CY 2017 through CY 2019 MCO and HealthChoice Results by Encounter Type

MCO	Inpatient			Outpatient			Office Visits		
	CY 2017	CY 2018	CY 2019	CY 2017	CY 2018	CY 2019	CY 2017	CY 2018	CY 2019
ABH	N/A	99%*	99%	N/A	98%*	96%	N/A	96%*	99%
ACC	99%	95%	95%	91%	98%	98%	93%	95%	97%
JMS	99%	95%	100%	95%	99%	97%	95%	92%	100%
KPMAS	100%	98%	100%	93%	100%	99%	95%	99%	99%
MPC	100%	98%	100%	93%	99%	97%	94%	96%	100%
MSFC	100%	98%	99%	93%	93%	90%	93%	95%	99%
PPMCO	100%	99%	99%	94%	98%	96%	97%	96%	98%
UHC	100%	95%	100%	93%	94%	95%	97%	96%	98%
UMHP	100%	54%	95%	94%	97%	99%	97%	96%	99%
HealthChoice	100%	94%	99%	93%	97%	96%	95%	96%	99%

*ABH received Not Applicable (N/A) for CY 2017 as CY 2018 was their first encounter data review.

Note: Values reported are rounded to the nearest percentage for reporting only.

Aetna Better Health of Maryland

- CY 2018 was the first year ABH submitted encounter data for EDV review. For CY 2019, ABH achieved match rates above the standard of 90% recommended by Qlarant in all areas of review:
    - 99% for all inpatient codes reviewed; consistent with CY 2018 (99%)
    - 96% for all outpatient codes reviewed; a 2 percentage point decrease from 98% in CY 2018.
    - 99% for all office visit codes reviewed; a 3 percentage point increase from 96% in CY 2018

AMERIGROUP Community Care

- ACC achieved match rates above the standard of 90% recommended by Qlarant in all areas of review:
    - 95% for all inpatient codes reviewed; consistent with CY 2018 (95%) and a 4 percentage point decrease from 99% in CY 2017.
    - 98% for all outpatient codes reviewed; consistent with CY 2018 (98%) and is a 7 percentage point increase from 91% in CY 2017.
    - 97% for all office visit codes reviewed; a 2 percentage point increase from 95% in CY 2018 and a 4 percentage point increase from 93% in CY 2017. ACC showed a continuous improvement over a three-year period.

Jai Medical Systems, Inc.

- JMS achieved match rates above the standard of 90% recommended by Qlarant in all areas of review:
    - 100% for all inpatient codes reviewed; a 5 percentage point increase from 95% in CY 2018 and a 1 percentage point increase from 99% in CY 2017.
    - 97% for all outpatient codes reviewed; a 2 percentage point decrease from CY 2018 of 99% and a 2 percentage point increase from the CY 2017 rate of 95%.
    - 100% for all office visit codes reviewed; an increase of 8 percentage points from the CY 2018 rate of 92% and an increase of 5 percentage points from the CY 2017 rate of 95%.

Kaiser Permanente of the Mid-Atlantic States, Inc.:

- KPMAS achieved match rates above the standard of 90% recommended by Qlarant in all areas of review:
    - 100% for all inpatient codes reviewed; a 2 percentage point increase from the CY 2018 rate of 98% and equal to the CY 2017 rate of 100%.
    - 99% for all outpatient codes reviewed; a 1 percentage point decrease from the CY 2018 rate of 100% and an increase of 6 percentage points from the CY 2017 rate of 93%.
    - 99% for all office visit codes reviewed; consistent with the CY 2018 rate of 99% and a 4 percentage point increase from the CY 2017 rate of 95%.

Maryland Physicians Care:

- MPC achieved match rates above the standard of 90% recommended by Qlarant in all areas of review:
    - 100% for all inpatient codes reviewed; a 2 percentage point increase from the CY 2018 rate of 98% and equal to the CY 2017 rate of 100%.
    - 97% for all outpatient codes reviewed; a decrease of 2 percentage points from the CY 2018 rate of 99% and 4 percentage points above the 93% CY 2017 rate.
    - 100% for all office visit codes reviewed; an increase of 4 percentage points over the CY 2018 rate of 96% and an increase of 6 percentage points over the 94% CY 2017 rate. MPC has shown continued improvement in office visit codes for three successive years.

MedStar Family Choice, Inc.:

- MSFC achieved match rates above the standard of 90% recommended by Qlarant in all areas of review:
    - 99% for all inpatient codes reviewed; an increase of 1 percentage points from the CY 2018 rate of 98% and is 1 percentage point below the CY 2017 rate of 100%.
    - 90% for all outpatient codes reviewed; a 3 percentage point decrease from both the CY 2018 and CY 2017 rates of 93%.
    - 99% for all office visit codes reviewed; a 4 percentage point improvement from the CY 2018 rate of 95% and an increase of 6 percentage points from the CY 2017 rate of 93%. The rates displayed a positive trend year over year.

Priority Partners:

- PPMCO achieved match rates above the standard of 90% recommended by Qlarant in all areas of review:
    - 99% for all inpatient codes reviewed; consistent with the 99% rate of CY 2018 and 1 percentage point decrease from the 100% CY 2017 rate.
    - 96% for all outpatient codes reviewed; a 2 percentage point decrease below the 98% CY 2018 rate and an increase of 2 percentage points from the CY 2017 rate of 94%.
    - 98% for all office visit codes reviewed; an increase of 2 percentage points above the CY 2018 rate of 96% and is 1 percentage point above the CY 2017 rate of 97%.

UnitedHealthcare Community Plan:

- UHC achieved match rates above the standard of 90% recommended by Qlarant in all areas of review:
    - 100% for all inpatient codes reviewed; a 5 percentage point improvement from the CY 2018 rate of 95% and equal to the CY 2017 rate of 100%.
    - 95% for all outpatient codes reviewed; an increase of 1 percentage point from the CY 2018 rate of 94% and an increase of 2 percentage points from the CY 2017 rate of 93%. UHC showed a continuous improvement over a three-year period.
    - 98% for all office visit codes reviewed; an improvement of 2 percentage points above the CY 2018 rate of 96% and an improvement of 1 percentage point from the CY 2017 rate of 97%.

University of Maryland Health Partners:

- UMHP achieved match rates above the standard of 90% recommended by Qlarant in all of the areas of review:
    - 95% for inpatient codes reviewed; a significant improvement of 41 percentage points above the CY 2018 rate of 54%, which indicates UMHP's CY 2018 corrective action plan was implemented effectively. This improvement remains 5 percentage points below the CY 2017 rate of 100%.
    - 99% for all outpatient codes reviewed; an increase of 2 percentage points from the CY 2018 rate of 97% and an increase of 5 percentage points from the CY 2017 rate of 94%. The rates displayed a positive trend from CYs 2017 to 2019.
    - 99% for all office visit codes reviewed; an increase of 3 percentage points over the CY 2018 rate of 96% and an increase of 2 percentage points over the CY 2017 rate of 97%.

Corrective Action Plans

For CY 2019 EDV, all of the HealthChoice MCOs achieved match rates that are equal to or above the 90% standard. There are no corrective action plans required as a result of the CY 2019 review.

Conclusion

HealthChoice is a mature managed care program and, overall, analysis of the electronic encounter data submitted by MCOs indicates the data are valid (complete and accurate).

Qlarant completed an EDV study for MDH based on an assessment of encounters paid during CY 2019. Qlarant conducted a medical record review on a sample of inpatient, outpatient, and office visit encounters (2,478) to confirm the accuracy of codes. Overall, MCOs achieved a match rate of 98%, meaning 98% of claims submitted were supported by medical record documentation. MCOs achieved a high match rate for each encounter setting 99% for inpatient, 96% for outpatient, and 99% for office visit.

MCO Strengths

- All MCOs appear to have well-managed systems and processes.
- All MCOs are capturing appropriate data elements for claims processing, including elements that identify the enrollee and the provider of service.
- All MCOs appear to have information systems and processes capable of producing accurate and complete encounter data.
- The HealthChoice MCO average rate for processing clean claims in 30 days was 97%, with MCO-specific rates ranging from 79% to 100%.
- The CY 2019 composite match rate of 98% is an increase of 2% from CY 2018 (96%).
- All MCOs met the Qlarant recommended match rate of 90% for all encounter types reviewed.
- Seven of the nine MCOs achieved a match rate of 99% or greater for inpatient encounters across all code types.
- UMHP displayed significant improvement for the CY 2019 inpatient codes reviewed. This improvement illustrates the enhanced partnership between the MCO and the providers, as during CY 2018, it was noted that UMHP providers did not submit enough records to meet the minimum sample requested.
- UHC and UMHP have shown an upward trend in matched outpatient encounters for three successive years.
- ACC, MPC, and MSFC have demonstrated a continued improvement in matched office visit encounters from CY 2017 to CY 2019.

MCO and State Recommendations

- MDH should continue to monitor 8ER reports to identify trends and encourage encounter data quality improvement (The Hilltop Institute, 2020).
- MDH should review MCOs that have a significantly higher percentage of rejected encounters than accepted encounters (The Hilltop Institute, 2020).
- MDH should continue to work with the MCOs to improve the quality and integrity of encounter submissions with complete and accurate pay data (The Hilltop Institute, 2020). For CY 2020, MDH should ensure that MMIS2 continues to store the correct sum of the total paid institutional service lines (The Hilltop Institute, 2020).
- MDH should continue to monitor monthly submissions to ensure that the MCOs submit data in a timely manner (The Hilltop Institute, 2020). MCOs that submit encounters more than 8 months after the date of service, which is the maximum time allotted for an encounter to be submitted to MDH, should be targeted for improvement (The Hilltop Institute, 2020).
- MDH should continue to monitor PCP visits by MCO in future encounter data validations (The Hilltop Institute, 2020).
- MDH should continue to review these data and compare trends in future annual encounter data validations to look for consistency (The Hilltop Institute, 2020).

- MDH should continue to review and audit the participant-level reports that Hilltop generated for delivery, dementia, and individuals over age 65, as well as missing age outlier data (The Hilltop Institute, 2020).
- Instruct MCOs to have their providers update and maintain accurate billing/claims address information to reduce returned mail and thus increase the amount of records received for review. A total of 300 provider letters were returned to Qlarant for CY 2019 which contained requests for 697 patients.
- Communicate with provider offices to reinforce the requirement to supply all supporting medical record documentation for the encounter data review so that all minimum samples can be met in a timely manner.
- Work with Hilltop to remedy encounter data issues where the MCO is identified as the provider.

Appendix A

Validation of Encounter Data CY 2019

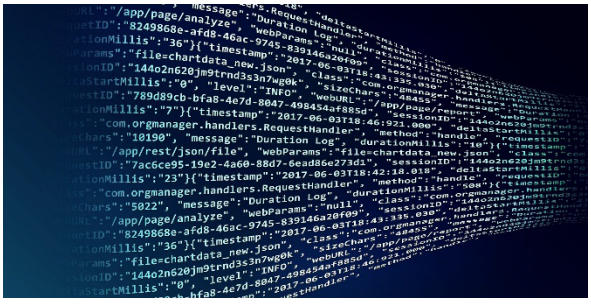
Completed by the Hilltop Institute, University of Maryland Baltimore County (Hilltop)

The Hilltop Institute
UMBC

report

EQR Protocol 5, Activity 3: Validation of Encounter Data, CY 2017 to CY 2019

December 17, 2020



Suggested Citation: The Hilltop Institute. (2020, December). *EQR protocol 5, activity 3: Validation of encounter data, CY 2017 to CY 2019.* Baltimore, MD: UMBC.

EQR Protocol 5, Activity 3: Validation of Encounter Data, CY 2017 to CY 2019

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EQR Protocol 5, Activity 3: Validation of Encounter Data, CY 2017 to CY 2019

Introduction

HealthChoice—Maryland's statewide mandatory Medicaid and Children's Health Insurance Program (CHIP) managed care system—was implemented in 1997 under the Social Security Act's §1115 waiver authority and provides participants with access to a wide range of health care services arranged or provided by managed care organizations (MCOs). In calendar year (CY) 2019, close to 90 percent of the state's Medicaid and Maryland Children's Health Program (MCHP) populations were enrolled in HealthChoice. HealthChoice participants are given the opportunity to select a primary care provider (PCP) from their MCO's network to oversee their medical care. If the participant does not select an MCO or PCP, then they are assigned to one. HealthChoice participants receive the same comprehensive benefits as those available to Maryland Medicaid (including MCHP) participants through the fee-for-service (FFS) system.

In addition to providing a wide range of services, one of the goals of the HealthChoice program is to improve the access and quality of health care services delivered to participants by the MCOs. The Maryland Department of Health (Department) contracted with The Hilltop Institute at the University of Maryland, Baltimore County (UMBC) to analyze and evaluate the validity of encounter data submitted by the HealthChoice MCOs. Hilltop has been conducting the annual encounter data evaluations and assisting the Department with improving the quality and integrity of encounter data submissions since the inception of the HealthChoice program.

In 2012, the Centers for Medicare & Medicaid Services (CMS) issued a set of external quality review (EQR) protocols to states receiving encounter data from contracted MCOs. The EQR process includes eight protocols—three mandatory and five optional—used to analyze and evaluate state encounter data for quality, timeliness, and access to health care services (CMS, 2012). In April 2016, CMS released its final rule on managed care,[1] which included a new regulation that states must require contracted MCOs to submit encounter data that comply with specified standards, formatting, and criteria for accuracy and completeness.[2] This final rule required substantive changes to the EQR protocols[3] and provided an opportunity to revise the protocol design. In October 2019, CMS released the updated protocols (the second revision since 2003) for the EQR to help states and external quality review organizations (EQROs) improve reporting in EQR technical reports. The new managed care final rule released in November 2020 did not include substantive changes to the EQR regulations.[4]

[1] Medicaid and CHIP Managed Care Final Rule. 81 Fed. Reg. 27,498, (May 6, 2016) (to be codified at 42 CFR Parts 431, 433, 438, 440, 457 and 495).
[2] 42 CFR § 438.818.
[3] 42 CFR § 438.350 –438.370 and 457.1250.
[4] Medicaid and CHIP Managed Care Final Rule. 85 Fed. Reg. 72,574, (November 13, 2020) (to be codified at 42 CFR Parts 438 and 457).

In 2018, the Department asked Hilltop to work with Qlarant, Maryland's EQRO, to perform an evaluation of all electronic encounter data submitted by the MCOs on an annual basis. Hilltop serves as the Department's data warehouse and currently stores and evaluates all Maryland Medicaid encounter data, providing data-driven policy consultation, research, and analytics. This specific analysis, Activity 3 of the CMS EQR Protocol 5 for the encounter data validation, is the core function used to determine the validity of the encounter data and ensure the data are complete and of high quality. Results of the evaluation may be used by the Department to work in conjunction with the MCOs to improve the quality and usefulness of their data submissions.

Hilltop evaluated all electronic encounter data submitted by the MCOs for CY 2017 through CY 2019. The two primary validation areas are 1) the Department's encounter data processing before acceptance of data and 2) the accepted encounter data review. Documentation of the data processing involves an overview of the electronic data interchange (EDI) and the Medicaid Management Information System (MMIS2), as well as the validation process for submitted encounters before acceptance. For this analysis, Hilltop obtained information from the Department about encounter data that failed the edit checks (rejected records) and reasons for failure. The review of accepted encounters that Hilltop conducted includes an analysis of the volume of encounters submitted over time, utilization rates, data accuracy and completeness of identified fields, and the timeliness of MCOs' submissions to the Department.

Methodology

The following methodology is designed to address the five required activities in the CMS EQR protocol 5:

- Activity 1: Review state requirements
- Activity 2: Review MCO's capability
- Activity 3: Analyze electronic encounter data
- Activity 4: Review of medical records
- Activity 5: Submission of findings

To evaluate Activity 3, information obtained from Activities 1 and 2 needs to be incorporated. The primary focus of Activity 3 is the analysis of the electronic encounter data submitted by the MCOs and is a substantive portion of this report. Activity 1 is necessary to develop the plan for encounter analysis, given that its directive is to ensure the EQRO has a complete understanding of state requirements for collecting and submitting encounter data (CMS, 2019).

The Department required the MCOs to submit all CY 2019 encounters by the end of June 2020. In July 2020, Hilltop reviewed the CMS Protocol 5 requirements and encounter data validation activities performed in other states and developed procedures for data validation. Hilltop then met with the Department to discuss these proposed procedures for data validation. The Department and Hilltop also reviewed and finalized the proposed methodology prior to performing this encounter data validation analysis. Next, Hilltop analyzed rejected encounter

data and accepted data with CY 2019 dates of service, using data as of October 2020. The review and audit processes for CY 2019 encounters concluded in November 2020.

Activity 3. Analysis of Electronic Encounter Data

In accordance with its interagency governmental agreement with the Department to host a secure data warehouse for its encounters and to provide data-driven policy consultation, research, and analytics, Hilltop completed Activity 3 of the encounter data validation.

Activity 3 requires the following four steps for analyses:

1. Develop a data quality test plan based on data element validity requirements
2. Encounter data macro-analysis—verification of data integrity
3. Encounter data micro-analysis—generate and review analytic reports
4. Compare findings to state-identified benchmarks

Step 1. Develop a Data Quality Test Plan Based on Data Element Validity Requirements

Hilltop incorporated information in Activities 1 and 2 to develop a data quality test plan. This plan accounts for the EDI (front-end) edits built into the state's data system so that it pursues data problems that the state may have inadvertently missed or allowed (CMS, 2019).

Hilltop first met with the Department in August 2018 to obtain pertinent information regarding the process and procedure used to receive, evaluate, and report on the validity of MCO encounter data. Hilltop also interviewed the Department staff to document state processes for accepting and validating encounter data to investigate and determine the magnitude and types of missing encounter data and identify potential data quality and MCO submission issues. Information provided included, but were not limited to, the following:

- MCO submission of encounter data through a secure data transfer system (837), via an EDI system, to the Department; the transfer of those data to the Department's mainframe for processing and validation checks and generation of exception (error) reports (8ER and 835); and the upload of the accepted data to MMIS2
    - The 837 contains patient claim information, while the 835 contains the payment and/or explanation of benefits for a claim
    - The Department receives encounter data from the MCOs in a format that is HIPAA 837 compliant—via an EDI system—and then executes validations to generate exception (error) reports that are in both HIPAA 835 compliant file format, as well as a Department summarized version known to the Department as the "8ER" report"

- Encounter data fields validated through the EDI process include recipient ID, sex, age, diagnosis codes, and procedure codes
    - The EDI does not perform validation checks on the completeness or accuracy of payment fields submitted by the MCOs
- Once the data have been validated by the EDI, the Department processes incoming data from the MCOs within 1 to 2 business days
- Error code (exception) reports (835 and 8ER) are generated by the validation process and sent to the MCOs

As a result, Hilltop receives the EDI error report data (the 8ER report) for analysis that includes the number, types, and reasons of failed encounter submissions for each MCO. An analysis of the frequency of different error types and rejection categories is included in this report. The 8ER error descriptions were used to provide a comprehensive overview of the validation process.

Successfully processed encounters receive additional code validation that identify the criteria each encounter must meet to be accepted into MMIS2. In addition, Hilltop plans the review of the accepted encounter data for accuracy, completeness, and timeliness of the MCO submission of data.

Hilltop met with the Department in August 2019 to obtain additional information relating to the plan for CY 2018 data analysis. This discussion included information regarding the new requirement for MCOs to submit encounters with paid-amounts data that meet specified form and content standards and criteria for accuracy and completeness in the format required by MMIS2.

- Starting January 1, 2018, MCOs were required by the Department to submit information related to payment for every encounter submitted

Hilltop met with the Department in September 2020 to discuss the CY 2019 analysis, and paid encounters continued to be an important field to analyze as this field was not complete in CY 2018. Hilltop used the information from the Department about encounter data that failed the edit checks (rejected encounters); reasons for failure by the EDI; and comparisons with CY 2017 and CY 2018 rejection results to conduct the analysis. Hilltop also used these data and knowledge of the MCOs' relationship with providers to identify specific areas to investigate for missing services; identify data quality problems, such as inability to process or retain certain fields; and identify problems MCOs may have compiling their encounter data and submitting the data files.

Step 2. Encounter Data Macro-Analysis—Verification of Data Integrity

Hilltop reviewed encounter data for accuracy and completeness by conducting integrity checks of the data files and automating the analyses. The analysis includes verifying that the state's identifiers (IDs) are accurately incorporated into the MCO information system; applying other consistency checks, such as verifying critical fields containing non-missing data; and inspecting the data fields for quality and general validity. Hilltop compared the number of participants to total accepted encounters by MCO, assessing whether the distribution is similar across MCOs.

Selected fields not verified by the Department during the EDI process in Step 1 were assessed for completeness and accuracy. Hilltop investigated how well the MCOs populated payment fields when submitting encounter data to the Department due to the new mandate effective January 1, 2018. Finally, the MCO provider number was evaluated to ensure that encounters received and accepted were only for MCOs currently active within the HealthChoice program. Encounters received and accepted with MCO provider numbers not active within the HealthChoice program were excluded from the analysis. Because Aetna Better Health of Maryland (ABH) joined the HealthChoice program in late 2017, its encounters were excluded from the CY 2017 analysis but included in the CY 2018 and CY 2019 analyses.

Step 3. Encounter Data Micro-Analysis—Generate and Review Analytic Reports

Hilltop analyzed and interpreted data based on the submitted fields, the volume and consistency of the encounter data, and utilization rates. Hilltop specifically conducted analyses for other volume/consistency dimensions in four primary areas: time, provider type, service type, and the appropriateness of diagnosis and procedure codes based on age and sex. The Department helped identify several specific analyses for each primary area related to policy interests. These analyses can be used for meaningful analysis and can inform the development of a long-term strategy for monitoring and assessing the quality of the encounter data.

Hilltop conducted an analysis of encounter data by time dimensions (e.g., service date and processing date) to show trends and evaluate consistency. After establishing the length of time between service dates and processing dates, Hilltop compared these with state standards or benchmarks for data submission and processing. Hilltop completed a comparison of time dimension data between MCOs to determine whether different MCOs process data within similar time frames. Hilltop analyzed encounter data by provider type to identify missing data. This analysis evaluates trends in provider services and seeks to determine any fluctuation in visits between CY 2017 and CY 2019. Provider analysis is focused on primary care visits, specifically the number of participants who had a visit within the calendar year. The service type analysis concentrated on three main service areas: inpatient hospitalizations, ED visits, and observation stays. The CY 2017 and CY 2018 analysis provides baseline data and allows the Department to identify any inconsistencies in utilization patterns for these types of services in CY 2019.

Finally, Hilltop analyzed age and sex appropriateness of diagnosis and procedure codes. Specifically, Hilltop conducted an age analysis of enrollees over age 66, deliveries, and the presence of a dementia diagnosis. Hilltop conducted a sex analysis for delivery diagnosis codes. Participants over the age of 65 are ineligible for HealthChoice; therefore, any encounters received for this population were noted, which may indicate a participant date of birth issue.

Step 4. Findings to State-Identified Benchmarks

In both Steps 2 and 3, Hilltop compared the encounter data submitted by each MCO to benchmarks identified by the Department. Hilltop performed the analyses by MCO and calendar years to benchmark each MCO against its own performance over time as well as against other

MCOs. Hilltop also identified and compared outlier data with overall trends noted among the MCOs.

Results of Activity 3: Analysis of MCO's Electronic Encounter Data

Step 1. Develop a Data Quality Test Plan Based on Data Element Validity Requirements

The Department initiated the evaluation of MCO encounter data with a series of validation checks on the encounter data received through the EDI. These validation checks include analysis of critical data fields, consistency between data points, duplication, and validity of data received. Encounters failing to meet these standards were reported to the MCOs, and both the 835 and the 8ER reports were returned to the MCOs for possible correction and re-submission.

The Department sent Hilltop the CY 2017 through CY 2019 8ER reports for analysis of encounters failing initial EDI edits (rejected encounters). Hilltop classified these rejected encounters into five categories: missing data, participant not eligible for service, value not valid for the field, inconsistent data, and duplicates. See Appendix A for a full list of rejection codes by each category for CY 2019 encounters.

Hilltop performed checks on critical fields for missing or invalid data, including provider number, units of service, drug number, drug quantity, revenue code, procedure code, and diagnosis code. Hilltop identified eligibility issues for participants not eligible for MCO services at the time of the service. Inconsistent data refers to an inconsistency between two data points. Examples of inconsistency include discrepancies between dates, inconsistencies between diagnosis and age or sex, and inconsistencies between original and re-submitted encounters.

Table 1 presents the distribution of rejected encounters submitted by all MCOs, by category, for CY 2017 to CY 2019.

Table 1. Distribution of Encounter Submissions Rejected by EDI Rejection Category, CY 2017 to CY 2019

Category For Rejection	CY 2017		CY 2018		CY 2019	
	Number of Rejected	Percent of Total	Number of Rejected	Percent of Total	Number of Rejected	Percent of Total
Missing	677,840	36.8%	725,751	38.4%	595,697	31.5%
Not Eligible	558,483	30.3%	638,633	33.8%	814,451	43.0%
Not Valid	276,763	15.0%	317,356	16.8%	334,314	17.7%
Inconsistent	244,463	13.3%	113,383	6.0%	46,438	2.5%
Duplicate	86,127	4.7%	96,115	5.1%	103,108	5.4%
Total	**1,843,676**	**100.0%**	**1,891,238**	**100.0%**	**1,894,008**	**100.0%**

Overall, the number of rejected encounters increased by 2.7 percent during the evaluation period. This increase may be attributed to the inclusion of ABH starting in the CY 2018 analysis. The two primary reasons encounters were rejected during the evaluation period were missing

data and participants not eligible for MCO services. The percentage of encounters rejected due to participants not eligible for MCO services increased from 30.3 percent in CY 2017 to 43.0 percent in CY 2019, while the percentage rejected due to missing data decreased from 36.8 percent in CY 2017 to 31.5 percent in CY 2019. While invalid encounters increased slightly (2.7 percentage points) during the evaluation period, there was a notable decrease (10.8 percentage points) of encounters rejected for inconsistency.

Analyzing the rejected encounters submitted by each MCO is useful for assessing trends as well as for identifying issues particular to each MCO. This allows the Department to follow up with each MCO and focus on potential problem areas. Table 2 presents the distribution of rejected and accepted encounter submissions across MCOs for CY 2017 through CY 2019.

Table 2. Distribution of Rejected and Accepted Encounter Submissions by MCO, CY 2017 to CY 2019

		ABH	ACC	JMS	KPMAS	MPC	MSFC	PPMCO	UHC	UMHP	Total
Number of Rejected	CY 2017		439,491	27,402	302,080	138,900	150,129	389,589	280,033	116,052	**1,843,676**
	CY 2018	3,772	272,351	19,539	144,737	222,191	275,397	390,459	323,288	239,504	**1,891,238**
	CY 2019	13,736	469,415	30,245	79,759	189,464	121,688	456,593	334,263	198,845	**1,894,008**
Percentage of All Rejected	CY 2017		23.8%	1.5%	16.4%	7.5%	8.1%	21.1%	15.2%	6.3%	**100.0%**
	CY 2018	0.2%	14.4%	1.0%	7.7%	11.7%	14.6%	20.6%	17.1%	12.7%	**100.0%**
	CY 2019	0.7%	24.8%	1.6%	4.2%	10.0%	6.4%	24.1%	17.6%	10.5%	**100.0%**
Number of Accepted	CY 2017		7,971,592	1,163,215	1,756,975	7,278,036	3,077,930	10,405,569	5,444,030	1,385,451	**38,482,798**
	CY 2018	238,382	8,104,745	1,167,013	1,822,032	7,586,969	3,390,876	10,767,991	5,109,989	1,701,329	**39,889,326**
	CY 2019	673,041	8,310,071	1,197,438	1,958,316	7,556,406	3,313,427	10,824,453	4,976,203	1,682,688	**40,492,043**
Percentage of All Accepted	CY 2017		20.7%	3.0%	4.6%	18.9%	8.0%	27.0%	14.1%	3.6%	**100.0%**
	CY 2018	0.6%	20.3%	2.9%	4.6%	19.0%	8.5%	27.0%	12.8%	4.3%	**100.0%**
	CY 2019	1.7%	20.5%	3.0%	4.8%	18.7%	8.2%	26.7%	12.3%	4.2%	**100.0%**

Amerigroup Community Care (ACC) had the highest share (24.8 percent) of all rejections in CY 2019, which was a significant increase from 14.4 percent in CY 2018 but only a 1.0 percentage point increase from CY 2017. Priority Partners (PPMCO) had a 24.1 percent share in CY 2019, which was an increase of 3.5 percentage points from CY 2018. UnitedHealthcare Community Plan (UHC) submitted 17.6 percent of the total rejected encounters in CY 2019—a slight increase of .5 percentage points from CY 2018.

Maryland Physicians Care (MPC) and University of Maryland Health Partners (UMHP) both submitted a significantly higher number of rejected submissions between CY 2017 and CY 2018 before slightly decreasing their number of rejected encounters in CY 2019. MPC had an increase in its share of rejections from 7.5 percent in CY 2017 to 11.7 percent in CY 2018 before experiencing a decrease to 10.0 percent in CY 2019. UMHP experienced an increase in its share of rejected submissions from 6.3 percent in CY 2017 to 12.7 percent in CY 2018, which decreased to 10.5 percent in CY 2019. ABH, Jai Medical Systems (JMS), MedStar Family Choice, Inc. (MSFC), and Kaiser Permanente of the Mid-Atlantic States, Inc. (KPMAS) are the four MCOs with less than 10 percent of the rejected encounters in CY 2019. KPMAS reduced its number of rejected encounters by almost 75 percent from CY 2017 to CY 2019, while MSFC decreased its

share of rejections by 1.7 percentage points. JMS's share remained relatively unchanged during the evaluation period.

Although there was some variation between each MCO's distribution of the total rejected encounters from CY 2017 to CY 2019, there was very little variation for each MCO's share of accepted encounters. For accepted encounter submission shares, the only MCO to change by more than 1.0 percentage point was UHC, which decreased from 14.1 percent in CY 2017 to 12.3 percent in CY 2019.

Tables 3 and 4 show the rate of encounters rejected by the EDI by category and MCO. Specifically, Table 3 presents the percentage of EDI encounters rejected by category and MCO for CY 2019.

Table 3. Percentage of Encounters Rejected by EDI Rejection Category by MCO, CY 2019

Category For Rejection	ABH	ACC	JMS	KPMAS	MPC	MSFC	PPMCO	UHC	UMHP
Duplicate	5.6%	9.1%	5.0%	3.2%	4.5%	4.8%	2.8%	4.3%	7.2%
Not Valid	28.0%	8.7%	44.3%	37.1%	20.8%	23.8%	12.8%	17.2%	31.3%
Inconsistent	2.3%	3.7%	0.7%	7.1%	1.6%	1.0%	0.2%	2.9%	4.1%
Missing	53.7%	17.8%	11.1%	42.8%	36.2%	56.6%	33.0%	41.8%	19.9%
Not Eligible	10.4%	60.7%	38.9%	9.7%	37.0%	13.8%	51.2%	33.9%	37.5%
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

See Appendix B for a graphical representation of Table 3.

The primary reason for rejection of encounters for MSFC, ABH, KPMAS, and UHC was the submission of missing data (ranging from 41.8 percent to 56.6 percent). Over 50 percent of both ABH's and MSFC's CY 2019 rejected encounters were due to missing data.

For ACC, PPMCO, UMHP, and MPC, the primary reason for rejection in CY 2019 was the submission of encounters for participants who were not eligible for MCO services at the time of the service (60.7 percent, 51.2 percent, 37.5 percent, and 37.0 percent, respectively). For JMS, the primary reason for rejection was invalid encounters (44.3 percent). Duplicate rejections are low across all MCOs but represent 9.1 percent of ACC rejections and 7.2 percent of UMHP rejections. Encounters rejected for inconsistencies were also low across all MCOs, ranging from 0.2 percent to 7.1 percent.

Table 4 presents the distribution of the reason for rejection and how it changed for each MCO between CY 2017 and CY 2019.

Table 4. Number and Percentage of Encounters Rejected by EDI Rejection Category, by MCO, CY 2017 to CY 2019

Category For Rejec..	Year	ABH	ACC	JMS	KPMAS	MPC	MSFC	PPMCO	UHC	UMHP	Total
Duplicate	CY 2017		48,559 11.0%	632 2.3%	307 0.1%	7,176 5.2%	6,250 4.2%	7,352 1.9%	9,867 3.5%	5,984 5.2%	**86,127 4.7%**
	CY 2018	33 0.9%	30,922 11.4%	218 1.1%	909 0.6%	4,499 2.0%	37,728 13.7%	5,491 1.4%	9,712 3.0%	6,603 2.8%	**96,115 5.1%**
	CY 2019	772 5.6%	42,534 9.1%	1,520 5.0%	2,588 3.2%	8,512 4.5%	5,846 4.8%	12,623 2.8%	14,301 4.3%	14,412 7.2%	**103,108 5.4%**
Inconsistent	CY 2017		46,947 10.7%	49 0.2%	173,764 57.5%	4,428 3.2%	363 0.2%	449 0.1%	14,448 5.2%	4,015 3.5%	**244,463 13.3%**
	CY 2018	142 3.8%	25,843 9.5%	406 2.1%	49,883 34.5%	8,292 3.7%	6,301 2.3%	4,332 1.1%	12,525 3.9%	5,659 2.4%	**113,383 6.0%**
	CY 2019	319 2.3%	17,449 3.7%	210 0.7%	5,634 7.1%	2,975 1.6%	1,171 1.0%	989 0.2%	9,607 2.9%	8,084 4.1%	**46,438 2.5%**
Missing	CY 2017		69,659 15.8%	6,290 23.0%	79,215 26.2%	81,800 58.9%	63,331 42.2%	182,650 46.9%	136,725 48.8%	58,170 50.1%	**677,840 36.8%**
	CY 2018	2,016 53.4%	62,431 22.9%	9,238 47.3%	69,573 48.1%	99,356 44.7%	150,950 54.8%	155,476 39.8%	134,715 41.7%	41,996 17.5%	**725,751 38.4%**
	CY 2019	7,377 53.7%	83,713 17.8%	3,346 11.1%	34,160 42.8%	68,554 36.2%	68,889 56.6%	150,458 33.0%	139,686 41.8%	39,514 19.9%	**595,697 31.5%**
Not Eligible	CY 2017		204,349 46.5%	11,670 42.6%	20,390 6.7%	18,265 13.1%	56,521 37.6%	135,337 34.7%	84,345 30.1%	27,606 23.8%	**558,483 30.3%**
	CY 2018	575 15.2%	79,098 29.0%	5,018 25.7%	7,916 5.5%	49,572 22.3%	54,879 19.9%	180,036 46.1%	120,087 37.1%	141,452 59.1%	**638,633 33.8%**
	CY 2019	1,428 10.4%	284,915 60.7%	11,767 38.9%	7,770 9.7%	70,100 37.0%	16,804 13.8%	233,901 51.2%	113,209 33.9%	74,557 37.5%	**814,451 43.0%**
Not Valid	CY 2017		69,977 15.9%	8,761 32.0%	28,404 9.4%	27,231 19.6%	23,664 15.8%	63,801 16.4%	34,648 12.4%	20,277 17.5%	**276,763 15.0%**
	CY 2018	1,006 26.7%	74,057 27.2%	4,659 23.8%	16,456 11.4%	60,472 27.2%	25,539 9.3%	45,124 11.6%	46,249 14.3%	43,794 18.3%	**317,356 16.8%**
	CY 2019	3,840 28.0%	40,804 8.7%	13,402 44.3%	29,607 37.1%	39,323 20.8%	28,978 23.8%	58,622 12.8%	57,460 17.2%	62,278 31.3%	**334,314 17.7%**
Total	**CY 2017**		**439,491 100.0%**	**27,402 100.0%**	**302,080 100.0%**	**138,900 100.0%**	**150,129 100.0%**	**389,589 100.0%**	**280,033 100.0%**	**116,052 100.0%**	**1,843,676 100.0%**
	CY 2018	**3,772 100.0%**	**272,351 100.0%**	**19,539 100.0%**	**144,737 100.0%**	**222,191 100.0%**	**275,397 100.0%**	**390,459 100.0%**	**323,288 100.0%**	**239,504 100.0%**	**1,891,238 100.0%**
	CY 2019	**13,736 100.0%**	**469,415 100.0%**	**30,245 100.0%**	**79,759 100.0%**	**189,464 100.0%**	**121,688 100.0%**	**456,593 100.0%**	**334,263 100.0%**	**198,845 100.0%**	**1,894,008 100.0%**

The total number of rejected encounters increased from CY 2017 to CY 2019 in all categories except for inconsistent rejections and missing data. UHC remained relatively consistent across the majority of rejection categories. UHC had an increase in rejections from participants being ineligible—from 84,345 in CY 2017 to 113,209 in CY 2019—and the number of invalid encounters increased from 34,648 in CY 2017 to 57,460 in CY 2019.

The number of encounters submitted with inconsistencies by PPMCO increased significantly: from 449 in CY 2017 to 4,332 in CY 2018, which decreased to 989 in CY 2019. UMHP's ineligible rejected encounters increased significantly—from 27,606 in CY 2017 to 141,452 in CY 2018—before decreasing to 74,557 in CY 2019. MPC's number of encounters rejected for invalid data more than tripled during the evaluation period. While ACC and JMS significantly decreased the number of rejections due to participants not being eligible for MCO services between CY 2017 and CY 2018, the number of rejections then significantly increased in CY 2019, exceeding the

number of rejections in CY 2017. Specifically, ACC decreased from 204,349 in CY 2017 to 79,098 in CY 2018 before increasing to 284,915 in CY 2019. JMS decreased from 11,670 in CY 2017 to 5,018 in CY 2018 before increasing to 11,767 in CY 2019.

The total number of rejections for KPMAS decreased significantly during the evaluation period due to improvements in two rejection categories. The number of encounters rejected for being inconsistent decreased by more than 95 percent, and the number of encounters rejected for participants being ineligible decreased by more than 60 percent. MSFC experienced a significant increase in rejections for missing data from 63,331 in CY 2017 to 150,950 in CY 2018, but this number greatly decreased to 68,889 in CY 2019. ABH was not included in the CY 2017 analysis; however, in both CYs 2018 and 2019, the majority of its rejections were due to missing data.

For more specific information about the top three MCO-specific EDI rejection codes (errors), see Appendix C.

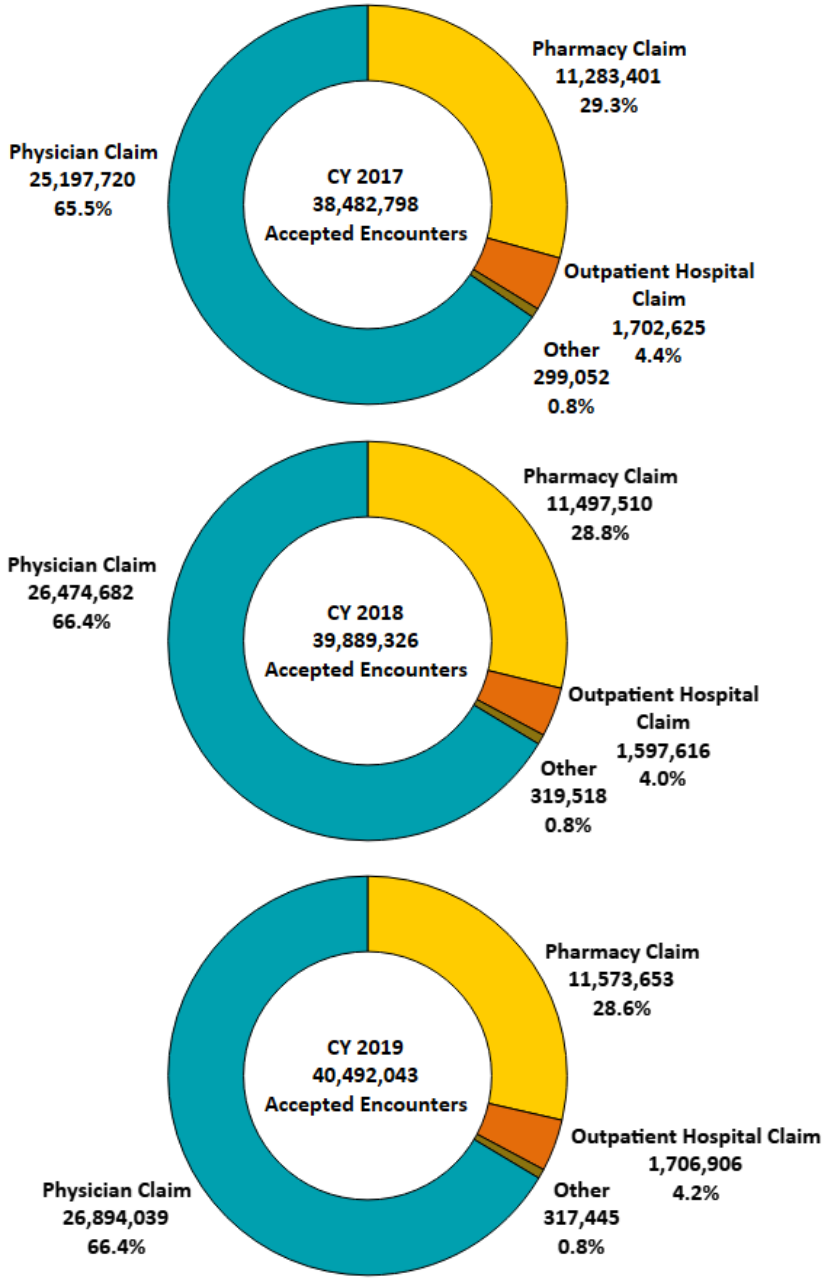
Step 2. Encounter Data Macro-Analysis—Verification of Data Integrity

During CY 2019, the MCOs submitted a total of 40.5 million accepted encounters (records), up from 38.5 and 39.9 million in CY 2017 and CY 2018, respectively. Although the above 8ER data received do not include dates of service, Hilltop estimated the total number of encounters submitted by summing the number of EDI rejected encounters and the number of accepted encounters. A total of approximately 40.3 million encounters were submitted in CY 2017, which increased to 42.4 million encounters submitted in CY 2019. Approximately 95 percent of the CY 2019 encounters were accepted into MMIS2, which is consistent with CY 2017 and CY 2018 encounters.

Hilltop received a monthly copy of all encounters accepted by MMIS2. Upon receipt of the accepted encounters, Hilltop performed several validation assessments and integrity checks of the data fields to analyze and interpret the accuracy and completeness of the data. The assessments included determining whether there is an invalid end date of service or other fatal errors. The files with errors were excluded before being imported into Hilltop's data warehouse.

Figure 1 shows the rate of accepted encounter submissions by claim type from CY 2017 to CY 2019.

Figure 1. Number and Percentage of Accepted Encounter Submissions by Claim Type, CY 2017 to CY 2019



The percentage of encounters was consistently distributed across claim types from CY 2017 to CY 2019. At 65.2 percent in CY 2017 and 66.4 percent in CY 2018 and CY 2019, physician claims represented most of the encounters during the evaluation period. Of all the encounters accepted into MMIS2 in CY 2019, pharmacy encounters and outpatient hospital encounters accounted for 28.6 percent and 4.2 percent, respectively. "Other" encounters—including inpatient hospital stays, community-based services, long-term care services, and dental services—accounted for 0.8 percent of encounters in CY 2017 through CY 2019.

Table 5 provides the percentage and number of encounters by claim type for each MCO in CY 2017 to CY 2019.

Table 5. Distribution of Accepted Encounters, by Claim Type and MCO, CY 2017 to CY 2019

Claim Type	Year	ABH	ACC	JMS	KPMAS	MPC	MSFC	PPMCO	UHC	UMHP
Physician Claim	CY 2017		67.2%	58.4%	73.9%	63.4%	62.9%	65.0%	66.9%	65.6%
			5,358,249	679,329	1,297,859	4,611,977	1,936,747	6,763,482	3,641,194	908,883
	CY 2018	73.0%	68.8%	58.9%	72.7%	65.0%	63.7%	65.5%	66.4%	68.8%
		173,944	5,576,838	687,893	1,324,970	4,934,269	2,158,695	7,054,378	3,393,761	1,169,934
	CY 2019	69.6%	68.1%	59.2%	73.3%	65.3%	63.8%	65.6%	67.8%	65.6%
		468,693	5,656,536	709,405	1,434,683	4,932,731	2,112,508	7,102,954	3,372,112	1,104,417
Pharmacy Claim	CY 2017		27.2%	36.6%	23.8%	31.4%	31.7%	29.7%	28.5%	26.5%
			2,165,826	426,312	418,584	2,284,909	976,952	3,089,710	1,553,692	367,416
	CY 2018	21.1%	26.5%	36.8%	24.9%	30.1%	30.8%	29.6%	29.0%	24.2%
		50,297	2,148,714	429,537	454,451	2,283,293	1,045,091	3,190,789	1,483,839	411,499
	CY 2019	24.5%	26.4%	35.6%	24.8%	30.1%	31.8%	29.4%	27.5%	25.1%
		165,104	2,197,587	425,738	485,369	2,276,112	1,053,442	3,177,988	1,370,212	422,101
Outpatient Hospital Claim	CY 2017		4.8%	4.5%	1.6%	4.4%	4.4%	4.7%	3.8%	6.7%
			379,686	52,804	28,151	318,877	135,609	485,270	209,156	93,072
	CY 2018	4.6%	3.9%	3.9%	1.7%	4.0%	4.4%	4.2%	3.8%	5.6%
		11,077	316,337	44,933	30,480	301,331	147,731	455,721	194,020	95,986
	CY 2019	4.5%	4.8%	4.7%	1.3%	3.7%	3.7%	4.4%	4.0%	7.3%
		30,314	396,602	56,563	26,017	280,639	122,527	473,872	196,754	123,618
Other	CY 2017		0.9%	0.4%	0.7%	0.9%	0.9%	0.6%	0.7%	1.2%
			67,831	4,770	12,381	62,273	28,622	67,107	39,988	16,080
	CY 2018	1.3%	0.8%	0.4%	0.7%	0.9%	1.2%	0.6%	0.8%	1.4%
		3,064	62,856	4,650	12,131	68,076	39,359	67,103	38,369	23,910
	CY 2019	1.3%	0.7%	0.5%	0.6%	0.9%	0.8%	0.6%	0.7%	1.9%
		8,930	59,346	5,732	12,247	66,924	24,950	69,639	37,125	32,552
Total	**CY 2017**		**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
			7,971,592	**1,163,215**	**1,756,975**	**7,278,036**	**3,077,930**	**10,405,569**	**5,444,030**	**1,385,451**
	CY 2018	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
		238,382	**8,104,745**	**1,167,013**	**1,822,032**	**7,586,969**	**3,390,876**	**10,767,991**	**5,109,989**	**1,701,329**
	CY 2019	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
		673,041	**8,310,071**	**1,197,438**	**1,958,316**	**7,556,406**	**3,313,427**	**10,824,453**	**4,976,203**	**1,682,688**

The distribution of encounters is relatively consistent across MCOs and calendar years. In CY 2019, physician encounters ranged from 59.2 percent of encounters (JMS) to 73.3 percent of encounters (KPMAS). JMS had the largest percentage of CY 2019 pharmacy encounters (35.6 percent), while ABH had the lowest percentage (24.5 percent). Outpatient hospital encounters ranged from a low of 1.3 percent for KPMAS to a high of 7.3 percent for UMHP. KPMAS had the lowest rate of outpatient hospital claims for all calendar years; we reviewed the Kaiser HFMR and found consistency with this data point.

For a visual display of the number and percentage of encounters by claim type and MCO in CY 2019, see Appendix D.

Table 6 illustrates the distribution of all enrolled HealthChoice participants and the volume of accepted encounters for each MCO during CY 2017[5] through CY 2019.

[5] The methodology for calculating the distribution of total participants changed to remove dental, which resulted in a slight difference in CY 2017 data reported last year.

Table 6. Percentage of Participants and Accepted Encounters by MCO, CY 2017 to CY 2019

MCO	CY 2017		CY 2018		CY 2019	
	Percent of Total Participants	Percent of Total Encounters	Percent of Total Participants	Percent of Total Encounters	Percent of Total Participants	Percent of Total Encounters
ABH			1.6%	0.6%	3.0%	1.7%
ACC	24.2%	20.7%	23.5%	20.3%	23.3%	20.5%
JMS	2.4%	3.0%	2.4%	2.9%	2.4%	3.0%
KPMAS	6.0%	4.6%	6.0%	4.6%	6.4%	4.8%
MPC	19.1%	18.9%	18.6%	19.0%	18.2%	18.7%
MSFC	8.1%	8.0%	8.3%	8.5%	8.1%	8.2%
PPMCO	25.5%	27.0%	25.5%	27.0%	25.4%	26.7%
UHC	14.0%	14.1%	13.2%	12.8%	12.7%	12.3%
UMHP	4.2%	3.6%	4.6%	4.3%	4.6%	4.2%
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

As noted previously, PPMCO and ACC are the largest MCOs, followed by MPC, UHC, MSFC, KPMAS, UMHP, JMS, and ABH. The distribution of accepted encounters among MCOs in CY 2017 through CY 2019 is proportional to the participant distribution among the MCOs for those years. For example, in CY 2019, PPMCO had 25.4 percent of all HealthChoice participants and 26.7 percent of all MMIS2 encounters.

Managed Care Regulations: Accurate and Complete Encounter Data

In 2016, CMS issued its final rule updating Medicaid managed care regulations.[6] One of the new requirements specified that MCOs must submit encounter data that are accurate and complete by January 2018.[7] To address this requirement, the Department notified Maryland MCOs in September 2017 that all encounter data submitted to the Department on or after January 1, 2018, must include allowed amounts and paid amounts on each encounter (Maryland Department of Health, 2017). In November 2020, CMS released a new final rule on managed care[8] that includes technical modifications; however, it does not include changes to the EQR and encounter data reporting regulations. Hilltop will review the entire regulations in more detail.

In 2010, the Department and the MCOs worked together to ensure complete and accurate submission of paid amounts on pharmacy encounters. Pharmacy encounter data flows through a point of sale (POS) system, ensuring data accuracy at the time of submission. For nearly a decade, pharmacy encounters have been reliable, and the Department has confidence in the integrity and quality of these pay data. Beginning in October 2017, the Department used the pharmacy paid encounter process as a framework to begin receiving paid data for all encounters.

The Department staff prepared MMIS2 to accept paid data for all encounters in the fall of 2017, convened technical MCO workgroups, and updated the 837 Companion Guides for professional

[6] Medicaid and CHIP Managed Care Final Rule. 81 Fed. Reg. 27,498, (May 6, 2016) (to be codified at 42 CFR Parts 431, 433, 438, 440, 457 and 495).
[7] 42 CFR § 438.818(a)(2).
[8] Medicaid and CHIP Managed Care Final Rule. 85 Fed. Reg. 72,574, (November 13, 2020) (to be codified at 42 CFR Parts 438 and 457).

and institutional encounters. Soon after MCOs began submitting pay data for all encounters in January 2018, the Department staff realized there were errors in processing the paid amount for medical and institutional encounters. By February 2018, the Department reviewed MCO paid submissions to determine how many encounters had missing paid amounts, how many were zero dollars (separated by denied and sub-capitated), and how many were populated. The Department staff shared their findings and met with MCOs one on one to improve their submission processes. By August 2018, MMIS2 had received complete pay data for all medical encounters.

In fall 2018, Department staff discovered that only the paid amount for the first service line of each institutional encounter was being recorded, which underreported the total amount paid. This was corrected in August 2020; therefore, MMIS2 stores the correct sum for all the total paid institutional service lines. The Department continues to work with the MCOs to ensure the validity of institutional and medical encounters.

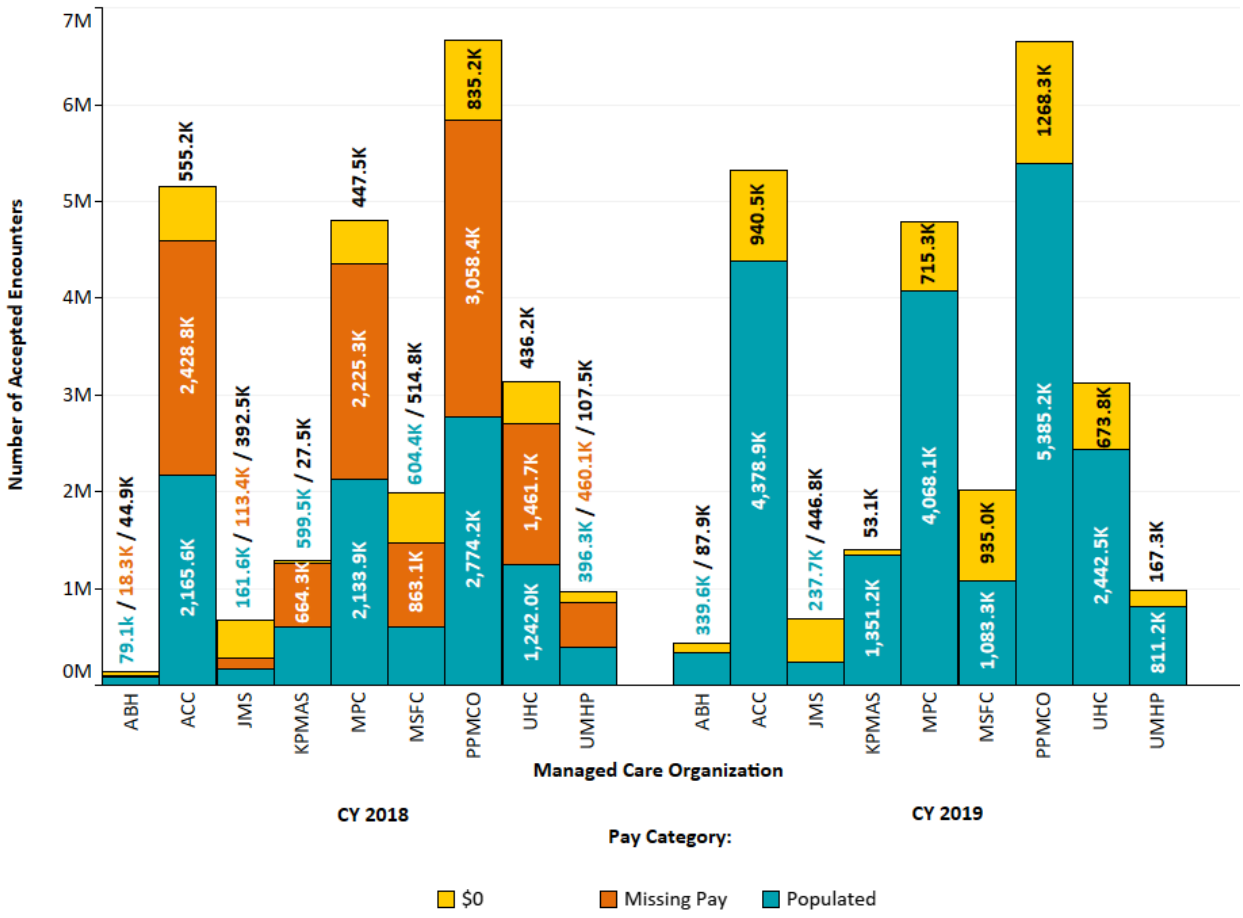
Due to the new CMS requirement, Hilltop conducted an analysis to assess the completeness of the payment fields in CY 2018 and CY 2019. A preliminary analysis of the CY 2019 encounters indicated that payment fields from institutional encounters continue to be insufficiently populated enough to be used for accurate analysis and were excluded from this report. Because the Department confirmed the reliability of pay data from pharmacy encounters, Hilltop excluded these data in its analysis. Therefore, this analysis focuses on payment fields from medical encounters only to assess each MCO's quality of data submissions for payment fields throughout CY 2019.

In CY 2019, the MCOs significantly improved the quality of their data submissions over the course of the calendar year. Improvements began in July 2018,[9] in part because the Department met with MCOs individually in the spring of 2018 to improve their submission and intake process of medical encounters and continued throughout CY 2019. In addition, by August 2018, MCOs were no longer submitting encounters with missing pay data. MCOs consistently submitted more than 20.0[10] percent of medical encounters with a $0 pay field through the end of CY 2019.

Figure 2 displays the distribution of pay category for each MCO's accepted medical encounter data in CY 2018[11] and CY 2019. See Appendix E for the number of accepted medical encounters by MCO and pay category for CY 2019.

[9] Data not shown.
[10] Data not shown.
[11] This requirement began in CY 2018.

Figure 2. Number of Accepted Medical Encounters, by MCO and Pay Category, CY 2018 and CY 2019



Step 3. Encounter Data Micro-Analysis—Generate and Review Analytic Reports

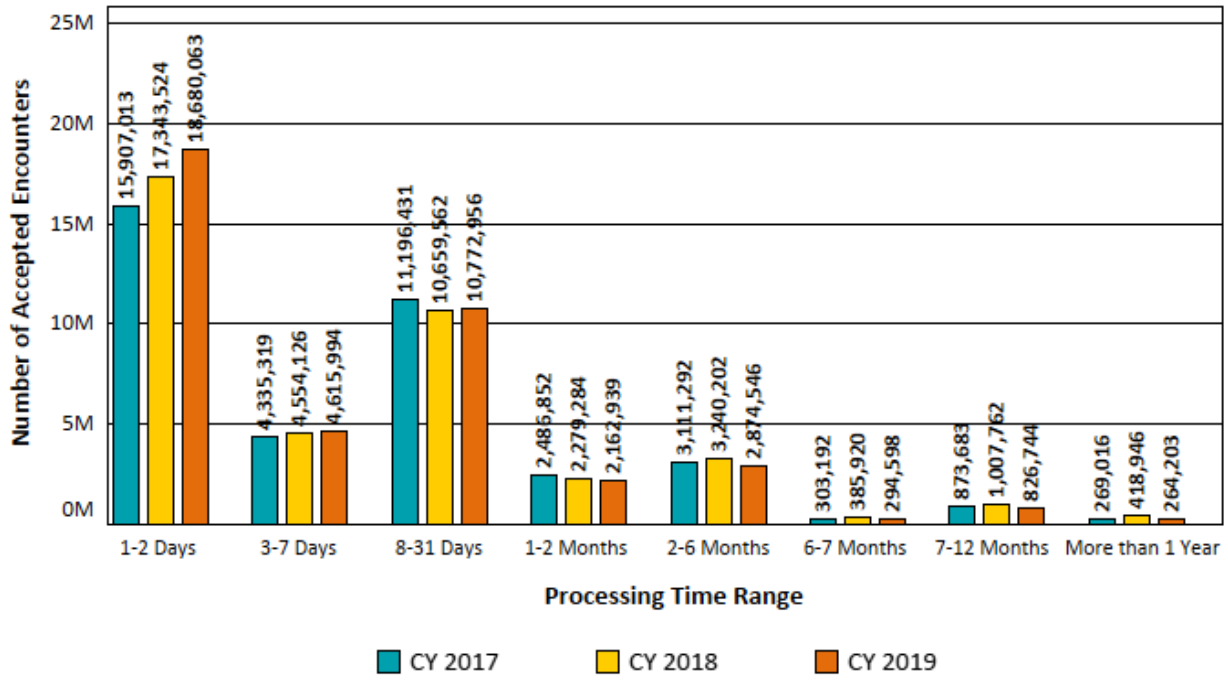
Time Dimension Analysis

Effective analysis of the Medicaid program requires complete, accurate, and timely processing of encounter data. The processing time of encounters spans the interval between the end date of service and when the encounter is submitted to the Department. Once a provider has rendered a service, that provider is required to invoice the MCO within 6 months. The MCO must then adjudicate the encounter within 30 days of being invoiced.[12, 13] Maryland regulations require MCOs to submit encounter data to the Department "within 60 calendar days after receipt of the claim from the provider."[14] Therefore, the maximum acceptable processing time allotted for an encounter between the end date of service and the date of submission to the Department is 8 months.

[12] Md. Code Ann., Health-Gen. §15-102.3.
[13] Md. Code Ann., Health-Gen. §15-1005.
[14] COMAR 10.09.65.15(B)(4).

The Medicaid program requires MCOs to submit encounters in a timely fashion; however, delays in submission occur, and some variation from month to month is expected. Noticeable changes related to timeliness may indicate irregular submission of encounter data. Figure 3 provides the timeliness of processing accepted encounter submissions from the end date of service for CY 2017 through CY 2019.

Figure 3. Number of Accepted Encounters Submitted by Processing Time, CY 2017 to CY 2019



Note for Figure 3 and Tables 7-9: An encounter is labeled as "1-2 months" if the encounter was submitted between 32 and 60 days after the date of service; "2-6 months" if the encounter was submitted between 61 and 182 days after the date of service; "6-7 months" if the encounter was submitted between 183 and 212 days after the date of service; and "7-12 months" if the encounter was submitted between 213 and 364 days after the date of service.

The majority of MCOs submitted encounters to the Department within 1 to 2 days of the end date of service, followed by 8 to 31 days, and 3 to 7 days. Very few encounters were submitted more than 6 months past the end date of service.

A greater number of MCOs submitted encounters within 1 to 2 days in CY 2019 than in CY 2017 and CY 2018. There was a small increase in encounters submitted within 3 to 7 days and a small increase in encounters submitted within 8 to 31 days in CY 2019, which could signify a positive trend for submission timeliness.

Table 7 shows the processing times for encounters submitted by claim type for CY 2017 through CY 2019.

Table 7. Distribution of the Total Number of Accepted Encounters Submitted, by Claim Type and Processing Time, CY 2017 to CY 2019

Processing Time Range	Pharmacy Claim			Physician Claim			Outpatient Hospital Claim			Other		
	CY 2017	CY 2018	CY 2019	CY 2017	CY 2018	CY 2019	CY 2017	CY 2018	CY 2019	CY 2017	CY 2018	CY 2019
1-2 days	76.4%	82.1%	83.9%	27.7%	28.6%	32.1%	16.0%	18.0%	17.5%	11.2%	13.1%	13.2%
	8,619,318	9,441,541	9,710,338	6,981,577	7,572,249	8,629,551	272,764	287,972	298,284	33,354	41,762	41,890
3-7 days	12.7%	11.8%	11.2%	10.9%	11.5%	11.7%	8.2%	8.8%	8.3%	6.8%	7.0%	7.1%
	1,431,810	1,358,174	1,293,712	2,742,752	3,032,872	3,158,232	140,365	140,852	141,371	20,392	22,228	22,679
8-31 days	10.2%	3.9%	4.7%	37.3%	36.4%	35.7%	32.5%	30.4%	31.0%	31.9%	29.2%	31.7%
	1,149,490	445,107	540,740	9,398,983	9,635,210	9,601,859	552,633	486,022	529,585	95,325	93,223	100,772
1-2 months	0.7%	0.1%	0.2%	8.6%	7.8%	7.1%	11.6%	9.9%	10.9%	15.1%	12.9%	14.4%
	77,737	12,188	22,195	2,166,724	2,067,369	1,909,679	197,339	158,648	185,498	45,052	41,079	45,567
2-6 months	0.0%	2.1%	0.1%	10.8%	10.1%	9.1%	19.3%	17.2%	21.7%	20.2%	20.0%	17.5%
	4,713	240,199	5,928	2,718,181	2,661,452	2,443,567	327,927	274,734	369,648	60,471	63,817	55,403
More than 6 Months	0.0%	0.0%	0.0%	4.7%	5.7%	4.3%	12.4%	15.6%	10.7%	14.9%	18.0%	16.1%
	333	301	740	1,189,503	1,505,530	1,151,151	211,597	249,388	182,520	44,458	57,409	51,134
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
	11,283,401	**11,497,510**	**11,573,653**	**25,197,720**	**26,474,682**	**26,894,039**	**1,702,625**	**1,597,616**	**1,706,906**	**299,052**	**319,518**	**317,445**

The majority of pharmacy encounters were submitted within 1 to 2 days of the end date of service for CY 2017 through CY 2019 (76.4, 82.1, and 83.9 percent, respectively), and over 75 percent of all physician encounters were submitted within 31 days (75.9, 76.5, and 79.5 percent, respectively). Nearly all claim types in CY 2019 had a higher percentage of encounters submitted within 1 to 2 days and 3 to 7 days than in CY 2017. For a visual display of the number and percentage of encounters submitted per time processing range and claim type in CY 2017 through CY 2019, see Appendix F.

Table 8 displays the monthly processing time for submitted encounters in CY 2017 through CY 2019.

Table 8. Percentage of Accepted Encounters Submitted by Month and Processing Time, CY 2017 to CY 2019[15]

Processing Time Range	Year	January	February	March	April	May	June	July	August	September	October	November	December	Total
1-2 days	CY 2017	40.4%	41.0%	41.5%	17.5%	46.4%	45.2%	42.7%	48.0%	41.9%	43.9%	43.2%	42.9%	**41.3%**
	CY 2018	43.8%	39.3%	38.9%	46.6%	44.9%	44.2%	40.6%	42.9%	45.1%	48.4%	43.8%	42.5%	**43.5%**
	CY 2019	42.7%	44.8%	46.9%	48.7%	44.2%	45.5%	45.0%	47.7%	41.8%	48.6%	45.9%	51.7%	**46.1%**
3-7 days	CY 2017	9.5%	10.6%	11.4%	17.3%	8.2%	12.2%	12.7%	11.0%	11.3%	9.8%	11.2%	10.7%	**11.3%**
	CY 2018	11.2%	11.7%	11.1%	11.9%	8.8%	10.8%	10.2%	12.2%	15.3%	10.9%	13.1%	9.9%	**11.4%**
	CY 2019	11.4%	13.6%	13.6%	10.3%	9.7%	14.3%	11.4%	10.5%	13.6%	11.4%	8.7%	8.4%	**11.4%**
8-31 days	CY 2017	29.4%	28.7%	26.7%	45.2%	28.6%	25.9%	26.9%	22.8%	28.5%	28.0%	28.5%	31.1%	**29.1%**
	CY 2018	25.0%	27.0%	27.2%	24.1%	29.8%	25.2%	31.2%	28.1%	22.5%	24.3%	26.0%	30.7%	**26.7%**
	CY 2019	28.6%	24.2%	21.1%	25.1%	31.0%	24.9%	27.4%	24.8%	30.1%	26.1%	30.5%	25.7%	**26.6%**
1-2 months	CY 2017	8.2%	7.3%	7.4%	9.6%	5.8%	4.9%	4.6%	6.1%	5.4%	6.7%	6.3%	5.1%	**6.5%**
	CY 2018	5.0%	8.3%	5.4%	6.8%	4.2%	6.8%	5.7%	4.7%	4.8%	5.5%	5.9%	5.8%	**5.7%**
	CY 2019	4.5%	4.5%	6.2%	5.2%	5.3%	5.2%	5.9%	6.7%	5.8%	5.0%	5.3%	4.3%	**5.3%**
2-6 months	CY 2017	7.1%	7.7%	8.2%	5.7%	6.1%	7.5%	9.1%	8.4%	9.4%	8.9%	9.6%	9.2%	**8.1%**
	CY 2018	8.1%	7.0%	11.7%	4.9%	6.5%	8.7%	7.6%	7.5%	9.0%	7.4%	9.7%	9.8%	**8.1%**
	CY 2019	8.6%	8.7%	7.8%	6.7%	6.0%	6.3%	6.3%	6.0%	5.1%	6.4%	8.6%	9.0%	**7.1%**
6-7 months	CY 2017	0.4%	0.4%	0.5%	0.7%	1.2%	1.4%	0.8%	0.8%	0.9%	1.6%	0.3%	0.4%	**0.8%**
	CY 2018	0.8%	0.4%	0.5%	0.7%	1.9%	0.7%	0.6%	2.0%	0.4%	2.2%	0.4%	0.6%	**1.0%**
	CY 2019	0.7%	0.6%	1.3%	0.5%	0.4%	0.4%	0.4%	0.4%	1.5%	1.7%	0.2%	0.4%	**0.7%**
7-12 months	CY 2017	2.7%	2.7%	2.6%	2.5%	3.3%	2.5%	2.9%	2.7%	2.6%	1.0%	0.9%	0.7%	**2.3%**
	CY 2018	2.6%	2.6%	3.5%	3.4%	3.2%	3.0%	3.6%	2.4%	2.9%	1.2%	1.1%	0.8%	**2.5%**
	CY 2019	1.9%	1.7%	1.4%	2.0%	3.0%	3.1%	3.3%	3.8%	2.1%	0.9%	0.7%	0.5%	**2.0%**
More than 1 Year	CY 2017	2.3%	1.6%	1.6%	1.4%	0.4%	0.3%	0.4%	0.2%	0.0%	0.0%	0.0%	0.0%	**0.7%**
	CY 2018	3.4%	3.6%	1.8%	1.5%	0.7%	0.6%	0.5%	0.1%	0.0%	0.0%	0.0%	0.0%	**1.1%**
	CY 2019	1.8%	1.9%	1.7%	1.4%	0.4%	0.3%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	**0.7%**
Total		**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

Across all months, timeliness of encounter submissions remained relatively consistent. For all encounters submitted in CY 2019, an average of 46.1 percent were processed by the Department within 1 to 2 days of the end date of service: an increase from 43.5 in CY 2018 and 41.3 in CY 2017. The increase in encounters submitted within 1 to 2 days could signify a positive trend for submission timeliness.

[15] In CY 2019, Hilltop updated the logic used to exclude a small number of adult dental claims. This caused CY 2017 and CY 2018 data to change slightly.

Table 9 displays processing times for encounters submitted to the Department by MCO from CY 2017 to CY 2019.

Table 9. Percentage of Accepted Encounters Submitted, by MCO and Processing Time, CY 2017 to CY 2019

MCO	1-2 days			3-7 days			8-31 days			1-2 months			2-6 months			6-7 months			7-12 months			More than 1 Year			Total
	CY 2017	CY 2018	CY 2019	CY 2017	CY 2018	CY 2019	CY 2017	CY 2018	CY 2019	CY 2017	CY 2018	CY 2019	CY 2017	CY 2018	CY 2019	CY 2017	CY 2018	CY 2019	CY 2017	CY 2018	CY 2019	CY 2017	CY 2018	CY 2019	
ABH		22.7%	31.6%		5.9%	7.7%		15.0%	19.3%		7.9%	6.4%		18.5%	12.6%		7.0%	2.6%		17.2%	12.5%		6.1%	7.2%	100.0%
ACC	36.2%	40.4%	47.3%	11.3%	11.3%	11.5%	33.9%	27.4%	23.5%	7.2%	6.1%	4.9%	7.9%	7.9%	9.1%	0.7%	1.4%	1.1%	2.1%	3.7%	2.1%	0.7%	1.8%	0.6%	100.0%
JMS	28.4%	30.7%	30.6%	4.8%	4.4%	4.0%	9.8%	6.0%	8.1%	12.0%	9.7%	12.6%	39.3%	32.0%	28.7%	2.9%	4.8%	3.2%	2.6%	11.5%	12.1%	0.3%	1.0%	0.7%	100.0%
KPMAS	56.9%	55.8%	70.7%	12.1%	12.6%	13.0%	17.5%	22.9%	12.1%	3.1%	3.7%	1.2%	4.2%	3.2%	1.7%	1.0%	0.4%	0.3%	4.4%	1.4%	0.9%	0.8%	0.1%	0.0%	100.0%
MPC	46.1%	47.3%	46.2%	11.6%	12.0%	11.9%	26.0%	24.4%	29.6%	4.8%	4.7%	5.3%	7.3%	9.1%	5.3%	0.8%	0.6%	0.4%	3.1%	1.6%	1.1%	0.2%	0.4%	0.2%	100.0%
MSFC	28.1%	34.1%	35.8%	8.7%	10.2%	10.6%	36.7%	34.4%	37.7%	14.0%	7.3%	7.1%	9.1%	8.9%	5.8%	0.7%	1.2%	0.6%	1.9%	3.1%	1.5%	0.8%	0.9%	0.8%	100.0%
PPMCO	48.6%	48.2%	51.2%	12.7%	12.3%	12.3%	27.8%	26.8%	25.7%	4.6%	4.7%	4.3%	4.1%	5.0%	4.1%	0.4%	0.4%	0.4%	1.1%	1.2%	1.3%	0.6%	1.4%	0.7%	100.0%
UHC	32.7%	35.7%	33.7%	10.7%	11.1%	10.7%	34.0%	33.7%	35.6%	6.5%	7.1%	7.0%	11.2%	8.9%	10.1%	1.2%	0.9%	0.8%	3.1%	2.1%	1.9%	0.7%	0.5%	0.2%	100.0%
UMHP	45.9%	51.6%	53.6%	11.0%	11.8%	11.6%	22.3%	17.3%	18.0%	7.2%	6.4%	4.9%	6.9%	8.5%	6.7%	0.6%	1.1%	0.8%	2.2%	2.6%	2.7%	3.9%	0.7%	1.7%	100.0%

All MCOs submitted a higher percentage of their encounters within 1 to 2 days in CY 2019 than in CY 2018 except for JMS, MPC, and UHC, which had slightly lower percentages in CY 2019. In CY 2019, the percentage of encounters submitted by MCOs within 1 to 2 days ranged from 30.6 percent (JMS) to 70.7 percent (KPMAS). The submission of encounters within 3 to 7 days decreased for four of nine MCOs, including JMS, MPC, UHC and UMHP. JMS, ABH, UHC, and MSFC had the lowest percentage of their encounters submitted within 1 to 2 days and 3 to 7 days in CY 2019.

See Appendix G for a stacked bar chart displaying the number and percentage of encounters within each claim type from CY 2017 to CY 2019 by processing time. For a table displaying the number and percentage of encounters submitted by MCO by processing time in CY 2019, see Appendix H. See Appendix I for a stacked bar chart displaying the percentage of encounters submitted by MCO by processing time in CY 2017 through CY 2019.

Provider Analysis

Evaluating encounters by provider type for fluctuations across MCOs contributes to the assessment of encounter data volume and consistency. The following provider analysis examines encounter data for PCPs and establishes a comparison rate of PCP visits in HealthChoice. Table 10 shows the distribution of all HealthChoice participants enrolled for any length of time who received a PCP service by MCO during CY 2017 through CY 2019.

Table 10. Number and Percentage of HealthChoice Participants (Any Period of Enrollment) with a PCP Visit by MCO, CY 2017 to CY 2019

	Year	ABH	ACC	JMS	KPMAS	MPC	MSFC	PPMCO	UHC	UMHP	Total
Number of Participants (Any Period of Enrollment)	CY 2017		328,265	31,842	80,858	259,140	109,884	345,541	189,658	55,968	1,401,156
	CY 2018	21,615	326,719	32,957	82,798	114,508	258,807	354,934	63,463	182,703	1,438,504
	CY 2019	40,404	320,789	32,605	87,330	111,008	249,947	350,199	174,910	61,974	1,429,166
Percentage of Participants with a Visit with Any PCP in any MCO network	CY 2017		75.2%	66.1%	54.5%	68.0%	60.0%	71.1%	69.7%	58.9%	65.4%
	CY 2018	10.3%	75.1%	67.9%	59.6%	61.9%	67.3%	70.4%	59.1%	67.3%	67.7%
	CY 2019	8.1%	76.0%	69.8%	64.1%	69.6%	65.0%	73.9%	71.2%	60.6%	69.4%
Percentage of Participants with a Visit with their Assigned PCP	CY 2017		41.5%	23.5%	45.0%	30.4%	26.0%	19.8%	38.1%	22.8%	30.9%
	CY 2018	2.1%	39.6%	1.0%	50.1%	27.6%	29.9%	20.2%	23.3%	34.7%	29.9%
	CY 2019	1.1%	39.2%	1.2%	49.8%	30.0%	24.2%	21.7%	33.0%	22.0%	29.3%
Percentage of Participants with a Visit with their Assigned PCP, Group Practice, or Partner PCPs	CY 2017		58.7%	51.4%	50.3%	49.3%	39.3%	22.0%	52.0%	36.0%	44.9%
	CY 2018	3.1%	57.1%	45.7%	55.4%	43.2%	47.4%	22.3%	36.0%	46.3%	42.2%
	CY 2019	2.6%	61.8%	50.9%	60.9%	51.5%	45.1%	24.8%	47.1%	37.9%	44.8%

Notes: Because a participant can be enrolled in multiple MCOs during the year, the total number of participants shown above is not a unique count. Counts do not include FFS claims. Please read PPMCO's results with caution; our analysis relied heavily on matching providers using a National Provider Identifier (NPI), and PPMCO's PCP assignment files had missing NPIs. The NPIs were present in MMIS2 but missing from the supplemental PCP assignment file that PPMCO submits to Hilltop for the PCP analysis.

The total number of participants for each MCO in Table 10 differs from the totals shown in Table 6 because this provider analysis is based on monthly PCP assignment files submitted by the MCOs to Hilltop rather than MMIS2 data. For this analysis, Hilltop matched the Medicaid identification numbers the MCOs provided for their members to eligibility data in MMIS2. Only participants listed in an MCO's files and with enrollment in MMIS2 were included in this analysis.

During CY 2019, the percentage of participants with a visit to their assigned PCP, group practice, or partner PCP for each MCO was between 24.8 percent (PPMCO) and 61.8 percent (ACC) (excluding ABH). Using the broadest definition of a PCP visit—a visit to any PCP within any MCO's network—the MCOs' percentage of participants with at least one PCP visit ranged from 60.6 percent (UMHP) to 76.0 percent (ACC) (excluding ABH). From CY 2017 to CY 2019, the overall percentage of participants with a visit to their assigned PCP and assigned PCP, group practice, or partner PCP decreased by 1.6 and 0.1 percentage points, respectively. The percentage of participants with a visit to any PCP within any MCO's network increased by 4 percentage points during the evaluation period.

Service Type Analysis

The analysis of CY 2017 and CY 2018 inpatient hospitalizations, ED visits, and observation stays serves as baseline data to compare trends to CY 2019 encounter data. Table 11 shows the number and percentage of encounter visits for each service type, by MCO, for CY 2017 to CY 2019.

Table 11. Number and Percentage of Inpatient Visits, ED Visits, and Observation Stays, CY 2017 to CY 2019

	Year	ABH	ACC	JMS	KPMAS	MPC	MSFC	PPMCO	UHC	UMHP	Total
Number of Visits	CY 2017		4,132,631	498,738	751,725	3,954,165	1,530,576	5,373,077	2,712,108	649,151	**19,602,171**
	CY 2018	105,638	4,066,620	493,254	832,237	3,970,844	1,632,551	5,457,692	2,528,972	764,310	**19,852,118**
	CY 2019	328,124	4,145,541	507,459	873,544	3,986,950	1,650,018	5,522,652	2,443,667	779,491	**20,237,446**
Percentage of All Visits	CY 2017		21.1%	2.5%	3.8%	20.2%	7.8%	27.4%	13.8%	3.3%	**100.0%**
	CY 2018	0.5%	20.5%	2.5%	4.2%	20.0%	8.2%	27.5%	12.7%	3.9%	**100.0%**
	CY 2019	1.6%	20.5%	2.5%	4.3%	19.7%	8.2%	27.3%	12.1%	3.9%	**100.0%**
Number of Inpatient Visits	CY 2017		24,702	3,564	4,964	24,691	9,297	33,945	15,904	4,509	**121,576**
	CY 2018	1,013	24,222	3,378	5,302	24,769	9,871	33,665	14,206	5,693	**122,119**
	CY 2019	2,808	24,061	3,898	6,146	23,985	9,526	32,586	13,723	7,491	**124,224**
Percentage of Visits that were Inpatient	CY 2017		0.6%	0.7%	0.7%	0.6%	0.6%	0.6%	0.6%	0.7%	**0.6%**
	CY 2018	1.0%	0.6%	0.7%	0.6%	0.6%	0.6%	0.6%	0.6%	0.7%	**0.6%**
	CY 2019	0.9%	0.6%	0.8%	0.7%	0.6%	0.6%	0.6%	0.6%	1.0%	**0.6%**
Number of ED Visits	CY 2017		178,774	26,028	16,895	168,083	59,954	204,714	105,954	28,002	**788,404**
	CY 2018	5,229	109,846	23,451	18,116	160,857	62,405	201,630	94,837	35,068	**711,439**
	CY 2019	14,182	147,082	25,176	17,500	150,968	60,520	196,441	88,629	34,031	**734,529**
Percentage of Visits that were ED	CY 2017		4.3%	5.2%	2.2%	4.3%	3.9%	3.8%	3.9%	4.3%	**4.0%**
	CY 2018	4.9%	2.7%	4.8%	2.2%	4.1%	3.8%	3.7%	3.8%	4.6%	**3.6%**
	CY 2019	4.3%	3.5%	5.0%	2.0%	3.8%	3.7%	3.6%	3.6%	4.4%	**3.6%**
Number of Observation Stays	CY 2017		8,435	1,444	719	9,871	3,040	8,705	6,088	1,250	**39,552**
	CY 2018	266	3,180	1,267	792	10,077	3,255	9,350	6,120	1,887	**36,194**
	CY 2019	643	7,329	1,542	968	10,196	3,366	9,768	6,080	1,915	**41,807**
Percentage of Visits that were Observation Stays	CY 2017		0.2%	0.3%	0.1%	0.2%	0.2%	0.2%	0.2%	0.2%	**0.2%**
	CY 2018	0.3%	0.1%	0.3%	0.1%	0.3%	0.2%	0.2%	0.2%	0.2%	**0.2%**
	CY 2019	0.2%	0.2%	0.3%	0.1%	0.3%	0.2%	0.2%	0.2%	0.2%	**0.2%**

Note: Visits were not unduplicated between inpatient visits, ED visits, and observation stays.

For this analysis, a visit is defined as one encounter per person per provider per day. MCOs reported a consistent distribution of visits by service type for all years of the evaluation period. The percentage for both the total inpatient hospitalizations and observation stays combined were less than 1.0 percent of visits each year. ED visits, which were 3.6 percent of all visits in CY 2019, ranged from 2.0 percent of all visits (KPMAS) to 5.0 percent of all visits (JMS). ACC reported an increase in ED visits from CY 2018 (109,846) to CY 2019 (147,082). As shown in the annual HealthChoice evaluation, the overall percentage of the HealthChoice participants with an outpatient ED Visit decreased between CY 2014 and CY 2018 (The Hilltop Institute, 2020).

Analysis by Age and Sex

Hilltop conducted an analysis of encounter data submitted by MCOs to determine the effectiveness of encounter data edit checks between CY 2017 and CY 2019. The three areas analyzed were 1) individuals over age 65 with encounters (because this population is ineligible for HealthChoice), 2) age-appropriate and sex-appropriate diagnoses for delivery, and 3) age-appropriate dementia diagnoses. There are expected age ranges for delivery and dementia used

to identify potential outliers within MMIS2 encounter data. High percentages of participants with these diagnoses outside of the established appropriate sex and age range could indicate potential errors within the data. Hilltop identified few outliers and provided individual-level reports to the Department for further investigation.

Because participants older than 65 are ineligible for HealthChoice, Hilltop searched for any encounters for those aged 66 or older. In CY 2019, across all MCOs, encounters were submitted for fewer than 11 participants[16] who were 66 or older or who did not have a reported date of birth; this is less than what was reported in CY 2017 (44). The MCOs and the Department improved the quality of reporting encounter data for age-appropriate diagnoses in CY 2019.

The next analysis checked the percentage of participants who had a diagnosis for delivery by age group between CY 2017 and CY 2019. Participants aged 0 to 12 and 51 or older are typically considered to be outside of the expected age range for delivery.[17] This analysis only considers female participants with a delivery diagnosis. Across all MCOs, the number of female participants identified as delivering outside of the expected age ranges was 61 in CY 2017, 47 in CY 2018, and 64 in CY 2019. The data substantiate that the encounters are age-appropriate for delivery. (See Appendix J for delivery codes.)

Hilltop also validated encounter data for delivery diagnoses being sex-appropriate. A diagnosis for delivery should typically be present on encounters for female participants. All MCOs have similar distribution, with nearly 100 percent of all deliveries being reported for females. Delivery diagnoses for male participants in the encounter data are negligible, accounting for only 30 reported deliveries across all MCOs in CY 2019, a decrease from what was reported in CY 2017 (43) and CY 2018 (40).[18]

The final analysis focused on age-appropriate diagnoses of dementia (see Appendix K for dementia codes) from CY 2017 to CY 2019. While dementia is a disease generally associated with older age, early onset can occur as early as 30 years of age. Thus, the prevalence of dementia diagnoses should increase with age after 30. Hilltop identified the number of participants under the age of 30 having an encounter with a dementia code compared to those aged 30 or older. As expected, the majority (89.2 percent) of participants with a diagnosis of dementia are aged 30 or older. While each MCO does have participants under the age of 30 with a dementia diagnosis, the numbers are relatively small (341 participants were reported across all MCOs in CY 2019). In CY 2018 and CY 2019, Hilltop used a more comprehensive diagnostic definition to identify participants with a dementia diagnosis, compared to CY 2017, causing an increase in the number of participants who met the criteria for having dementia. Starting CY 2018, ICD-10 diagnosis codes G30 and G31 were included in this analysis, and the numbers are not comparable to what was reported in CY 2017.

[16] Data not shown due to small cell sizes.
[17] Data not shown by MCO due to small cell sizes.
[18] Data not shown by MCO due to small cell sizes.

Recommendations

Step 1. Develop a Data Quality Test Plan Based on Data Element Validity Requirements

In Step 1, Hilltop reviewed 8ER reports and found that, out of approximately 42.4 million overall encounters, close to 1.9 million encounters (approximately 4.5 percent) were rejected through the EDI process in CY 2019. The Department should continue to monitor 8ER reports to identify trends and encourage encounter data quality improvement. MCOs had significantly fewer encounters rejected for inconsistencies in CY 2019 compared to CY 2017 and CY 2018; however, in CY 2019, more encounters were rejected because of duplicate data and providing services to ineligible participants. MCOs also had fewer missing fields in CY 2019 than in CY 2017 and CY 2018.

KPMAS, MPC, MSFC, and UMHP all submitted fewer EDI rejected encounters in CY 2019 than in CY 2018. UMHP accounted for only 3.6 percent of all accepted encounters but 10.5 percent of rejected encounters. The Department should review MCOs that have a significantly higher percentage of rejected encounters than accepted encounters. Hilltop recommends that the Department address the following issues:

- ABH saw an increase in the number and percentage of rejected encounters from CY 2018 to CY 2019. The percentage of rejected encounters increased for the following three categories: duplicate, missing, and invalid encounters.
- After experiencing a decrease from CY 2017 to CY 2018, ACC experienced a significant increase in the percentage of all rejected encounters from CY 2018 (14.4 percent) to CY 2019 (24.8 percent). This can be attributed to the significant increase in rejections for ineligible encounters from CY 2018 to CY 2019 (79,098 to 284,915).
- JMS experienced a notable increase in rejected encounters from CY 2018 to CY 2019 within three categories: duplicates, not eligible, and not valid. This followed a decrease from CY 2017 to CY 2018 in all three categories.
- KPMAS had an increase in rejected encounters in the duplicate, not eligible, and not valid categories.
    - The invalid category had a notable increase from 16,456 in CY 2018 to 29,607 in CY 2019 (11.4 percent to 37.1 percent).
- MPC experienced an increase in rejections for duplicates and ineligible.
    - For ineligible encounter submissions, the number of rejected encounters increased from 49,527 in CY 2018 to 70,100 in CY 2019 (22.3 percent to 37 percent).
- MSFC experienced an increase in the percentage of missing data and invalid encounters.
    - The percent of invalid encounters increased from 9.3 percent in CY 2018 to 23.8 percent in CY 2019.

- PPMCO's percentage of total rejected encounters increased from 20.6 percent in CY 2018 to 24.1 percent in CY 2019. This rate is only slightly lower than the ACCs of 24.8 percent. The rejection categories that increased include duplicate, ineligible, and invalid encounters
    - For the duplicates, the number increased from 5,491 in CY 2018 to 12,623 in CY 2019 (1.4 percent to 2.8 percent).
    - For the ineligible category, the number increased from 180,036 in CY 2018 to 233,901 in CY 2019 (46.1 percent to 51.2 percent).
    - For the invalid category, the number increased from 45,124 in CY 2018 to 58,622 in CY 2019 (11.6 percent to 12.8 percent).
- UHC experienced an increase in duplicate and invalid encounter submission rejections, with a very slight increase in the missing data category.
    - For duplicates, the number increased from 9,712 (3.0 percent) in CY 2018 to 14,301 (4.3 percent) in CY 2019.
    - For invalid encounter rejections, the number increased from 46,249 (14.3 percent) in CY 2018 to 57,460 (17.2 percent) in CY 2019.
- UMHP experienced increases in the duplicates, inconsistencies, missing data, and invalid categories.
    - For duplicates, the number increased from 6,603 in CY 2018 and 14,412 in CY 2019 (2.8 percent to 7.2 percent).
    - For inconsistencies, the number increased from 5,659 in CY 2018 to 8,084 in CY 2019 (2.4 percent to 4.1 percent).
    - For invalid encounter rejections, the number increased from 43,794 in CY 2018 to 62,278 in CY 2019 (18.3 percent to 31.3 percent).

Step 2. Encounter Data Macro-Analysis—Verification of Data Integrity

Hilltop analyzed and interpreted the encounter data and found that during CY 2019, the MCOs submitted a total of 40.5 million accepted encounters (records), up from 38.5 and 39.9 million in CY 2017 and CY 2018, respectively. Hilltop reviewed encounters by claim type and found the distribution to be relatively similar across MCOs. Each MCO's distribution of encounters across claim types remained stable and consistent across years. Hilltop also compared the proportion of HealthChoice participants by MCO to the proportion of accepted encounters by MCO and found similar trends. For the second time, Hilltop conducted an analysis of paid information on medical encounters and found that there was significant improvement in completeness of paid information over the course of CY 2019. In fact, by August 2018, all HealthChoice MCOs were submitting medical encounters with populated payment fields. The Department should continue to work with the MCOs to improve the quality and integrity of encounter submissions with complete and accurate pay data. For CY 2020, the Department should ensure that MMIS2 continues to store the correct sum of the total paid institutional service lines.

Step 3. Encounter Data Micro-Analysis—Generate and Review Analytic Reports

Time Dimension Analysis

Hilltop compared the date of service to the MCO encounter submission date and found that most encounters in CY 2019 were submitted to the Department within 1 month of the end date of service, consistent with CY 2018 and CY 2017 findings. Nearly all (83.9 percent) pharmacy encounters were submitted within 1 to 2 days of the date of service. ABH submitted 41.3 percent of its encounters more than 1 month after the date of service, and 80.2 percent within 7 months of the service date. In CY 2017, JMS submitted nearly all (97.1 percent) of its encounters within 7 months, but in CY 2018 and CY 2019, this dropped to 87.5 and 87.2 percent, respectively. Four MCOs—JMS, ABH, UHC, and MSFC—submitted the lowest percentage of their encounters within 7 days of the date of service in CY 2019. The Department should continue to monitor monthly submissions to ensure that the MCOs submit data in a timely manner. MCOs that submit encounters more than 8 months after the date of service, which is the maximum time allotted for an encounter to be submitted to the Department, should be targeted for improvement.

Provider Analysis

Hilltop compared the percentage of participants with a PCP visit by MCO between CY 2017 and CY 2019 and found that the only PCP visits to increase were participants with a visit to any PCP within any MCO's network. The Department should continue to monitor PCP visits by MCO in future encounter data validations.

Service Type Analysis

Hilltop reviewed the volume of inpatient visits, ED visits, and observation stays by MCO. Service type trends were consistent across MCOs and years. There was a slight decrease in ED visits overall, which is consistent with the reporting in the annual HealthChoice evaluation (The Hilltop Institute, 2020). The Department should continue to review these data and compare trends in future annual encounter data validations to look for consistency.

Analysis by Age and Sex

The MCOs and the Department improved the quality of reporting encounter data for age-appropriate and sex-appropriate diagnoses in CY 2019. The Department should continue to review and audit the participant-level reports that Hilltop generated for delivery, dementia, and individuals over age 65, as well as missing age outlier data. MCOs submitting the encounter outliers should be notified, and demographic information should be updated, or adjustments should be made as needed.

Conclusion

HealthChoice is a mature managed care program and, overall, analysis of the electronic encounter data submitted by MCOs indicates that the data are valid (complete and accurate). In general, the MCOs have similar distributions of rejections, types of encounters, types of visits, and outliers, except where specifically noted in the results. This analysis did identify minor outliers that merit further monitoring and investigation, although the MCOs did make progress. Hilltop generated recipient-level reports for Department staff to discuss with the MCOs. The Department should review the content standards and criteria for accuracy and completeness with the MCOs. Continuing work with each MCO to address any identified discrepancies will improve the quality and integrity of encounter submissions and increase the Department's ability to assess the efficiency and effectiveness of the Medicaid program.

Hilltop found that the volume of accepted encounters was generally consistent with MCO enrollment. Although the time-dimension analysis indicated some variation between MCOs regarding the timeliness of encounter submissions, the vast majority of encounters were submitted within the eight-month maximum time allotted by the Department. The increase in encounters submitted within 1 to 2 days could signify a positive trend for submission timeliness. However, four MCOs—JMS, ABH, UHC, and MSFC—did not submit the majority of their encounters within days of date of service in CY 2019, while KPMAS had the timeliest submissions. The Department staff should work with MCOs to improve the timeliness of encounter submissions, especially for MCOs with high rates of submissions occurring more than 6 months after the end date of service. This will help determine a long-term monitoring strategy for assessing the quality and usability of the encounter data.

When reviewing the CY 2018 and CY 2019 encounter data analysis, it is important to consider that ABH joined the HealthChoice program in November 2017 and started reporting Maryland Medicaid data in CY 2018. Thus, the CY 2018 encounter data should be considered benchmark data for ABH. It may take a few years for ABH to submit encounters with the same accuracy and consistency as more established MCOs.

Based on the Medicaid and CHIP Managed Care Final Rule and federal guidance, the Department modified its regulations and managed care contracts to establish minimum elements for encounter data to improve the accuracy and completeness of submissions. In the reporting requirements section of the CY 2019 managed care contract, MCOs have a requirement to ensure that they transmit allowed, paid, participant-responsibility, and third-party liability amounts with all encounters (Maryland Department of Health, 2018, p. 11). In previous years, the Department convened a standing MCO Encounter Data Workgroup, which disbanded in 2015. The Department reconvened this workgroup in 2018 to ensure compliance with the new requirements and to review the results of the previous encounter data validation report. Over the course of CY 2018, the Department also worked with MCOs individually to help them submit complete and accurate pay data for medical encounters, with the goal of establishing the same quality of submissions as seen with pharmacy encounter data. By August 2018 and throughout

CY 2019, all MCOs were submitting complete data for all medical encounters. Thus, the Department's commitment to the quality of encounter data resulted in MCO improvements.

For next year's analysis, Hilltop will determine the accuracy of these data by comparing the paid amount field to a benchmark amount. An additional analysis will be conducted to assess how many encounters with a paid amount of $0 are sub-capitated payments or denied payments. In CY 2020, Hilltop will analyze the accuracy of the institutional paid amounts. The Department should continue to work with MCOs to review the process for submitting complete and valid encounter data, particularly for payment fields.

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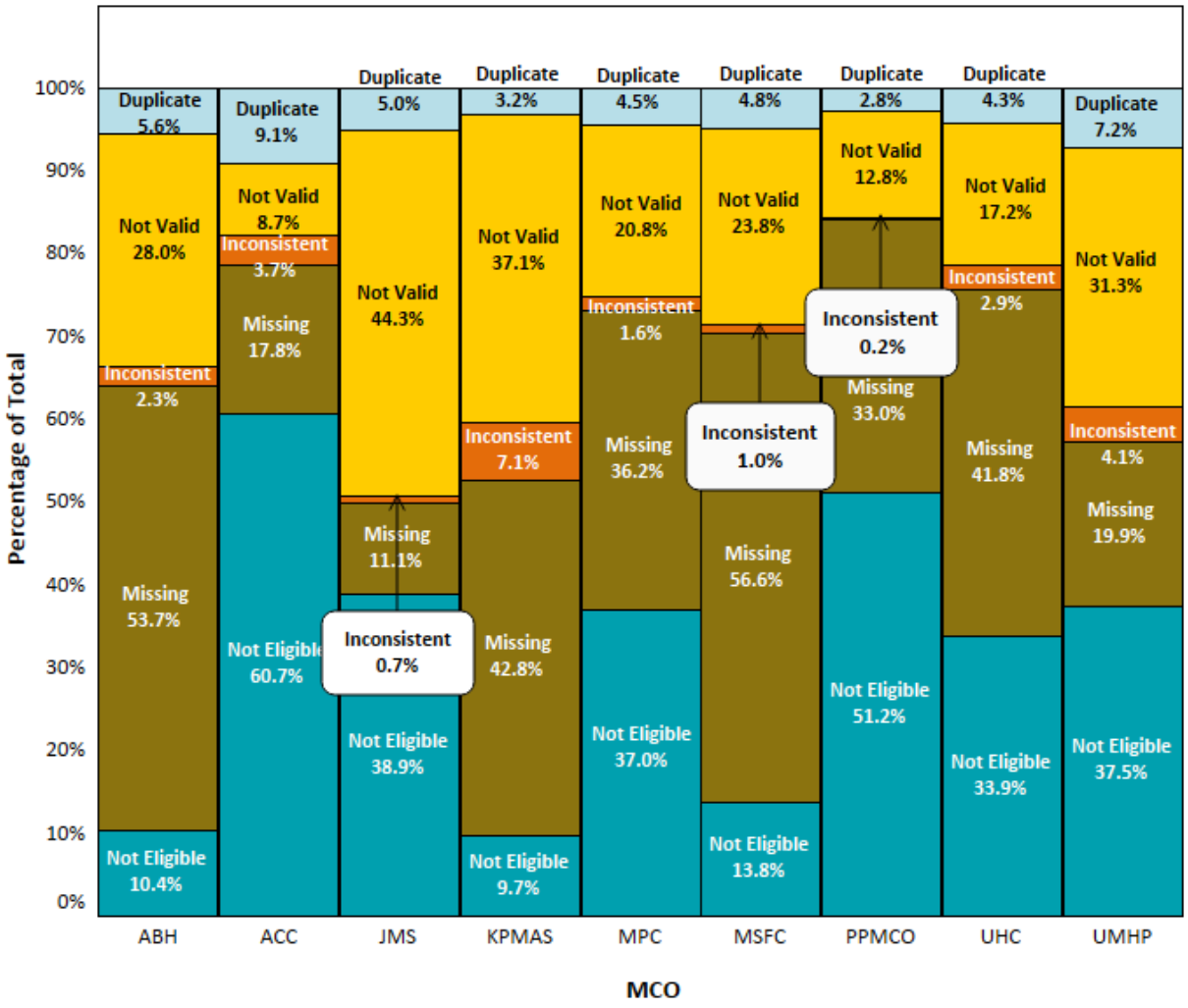
Appendix A. Rejection Codes, Errors, within Categories for Rejection, CY 2019

Category For Rejection	
Duplicate	ORIG ICN FD ON HIST ALRD VOID
	NDC CODE IS DUPLICATE
Inconsistent	ORIG ICN N/FOUND ON HISTORY
	VOID RESUBMIT RECPT NOT = HIST
	FIRST SURG DOS W/IN SVC PERIOD
	SEX RECIP N/VALD F/REPT PROC
	FIRST DIAGNOSIS AGE CONFLICT
	FRM DOS PRIOR TO RECIP DOB
	ADMIT DATE AFTER 1ST DATE SER
	4TH DIAGNOSIS AGE CONFLICT
	FIRST DIAGNOSIS SEX CONFLICT
	ORIG ENC TP A/RES DN AGREE
	PAT STAT CD DISCHRG DTE CNFLT
	2ND DIAG SEX CONFLICT
	VD/RESB MCO# NOT EQL HISTORY
	4TH DIAGNOSIS SEX CONFLICT
	3RD DIAGNOSIS AGE CONFLICT
	3RD DIAGNOSIS SEX CONFLICT
	BILL/PAY2 PROV NPI <> MA ID
Missing	NPI ON ENC NOT FOUND IN MMIS
	NDC MISSING OR NOT VALID
	BILLING PROV NUM MISSING
	UNITS OF SERVICE EQUAL ZERO
	NPI NUMBER IS MISSING
	NDC QUANTITY MISSING
	INV/MISS PLACE OF SERVICE
	INVLD OR MISS REV/HCPCS CODE
	PROCEDURE CODE CONTAINS BLANKS
	TOOTH # REQD FOR PROC IS MISS
	TOOTH SURF REQ F/PROC IS MISS
	PROC CODE REQ DIAG CODE
	00430PROC/REV CODE NOT ON FILE

Category For Rejection	
Not Eligible	RECIP NOT ENRLD W/RPT MCO DOS
	PROC/REV CODE NOT COVD DOS
	RECPT NOT ON ELIGIBILITY FILE
	EXCEPTION 975
	EXCEPTION 962
	EXCEPTION 961
	EXCEPTION 963
	EXCEPTION 964
	EXCEPTION 965
Not Valid	PROVIDER NUMBER NOT VALID
	FACILITY NUMBER NOT VALID
	PROC/REV CODE NOT ON FILE
	UB92 TYPE OF BILL INVALID
	VD/RESB RECD WOUT/ORIG ICN.
	RECPT NUMBER NOT 11 NUM DIGITS
	FIRST DIAGNOSIS NOT ON FILE
	2ND DIAG NOT ON FILE
	NPI/MA# NOT MATCHED IN MMIS
	NDC NOT VALID STRUCTURE
	FIRST DOS NOT STRUCTURED PROP
	ATTEND PROV NOT IN MCO NET
	PERFORMING PROV N/ON NTW FILE
	NPI NUMBER INVLD FR PYTOPROV
	CHARGE EXCEEDS EXCESS AMOUNT
	ADMIT DATE NOT STRUCTURED PROP
	NPI#NFDONPROVFLFRENREFFACLTY
	CLAIM EXCEEDS 50 SERVICE LINES
	PROC NOT COVERED FOR DOS
	RENDERING PROVIDER SUSPENDED
	INVALID RENDERING PROV NUMBER
	FIRST PROC NOT ON FILE
	PAY-TO/FAC PROVIDER SUSPENDED
	REND PROV NOT ACT ON DOS
	NPI ON ENC NOT FOUND ON NETWK
	3RD DIAG NOT ON FILE
	4TH DIAG NOT ON FILE
	SECOND PROC NOT ON FILE
	LAST DOS AFTER BATCH PROC DATE
	PATIENT DISCHARGE STATUS INVAL
	PAY-TO/FAC PROV NOT ACT DOS
	SVC/REND PROV# N/9 NUM DIGITS
	00971NPI ON ENC NOT FOUND IN M
	PROC BLD N/VLD F CLMTYP
	1ST SURG PROC DATE INVALID
	REND PROV NOT ON FILE
	00435SEX RECIP N/VALD F/REPT P
	DENTAL CODE NOT VALID FOR DOS.

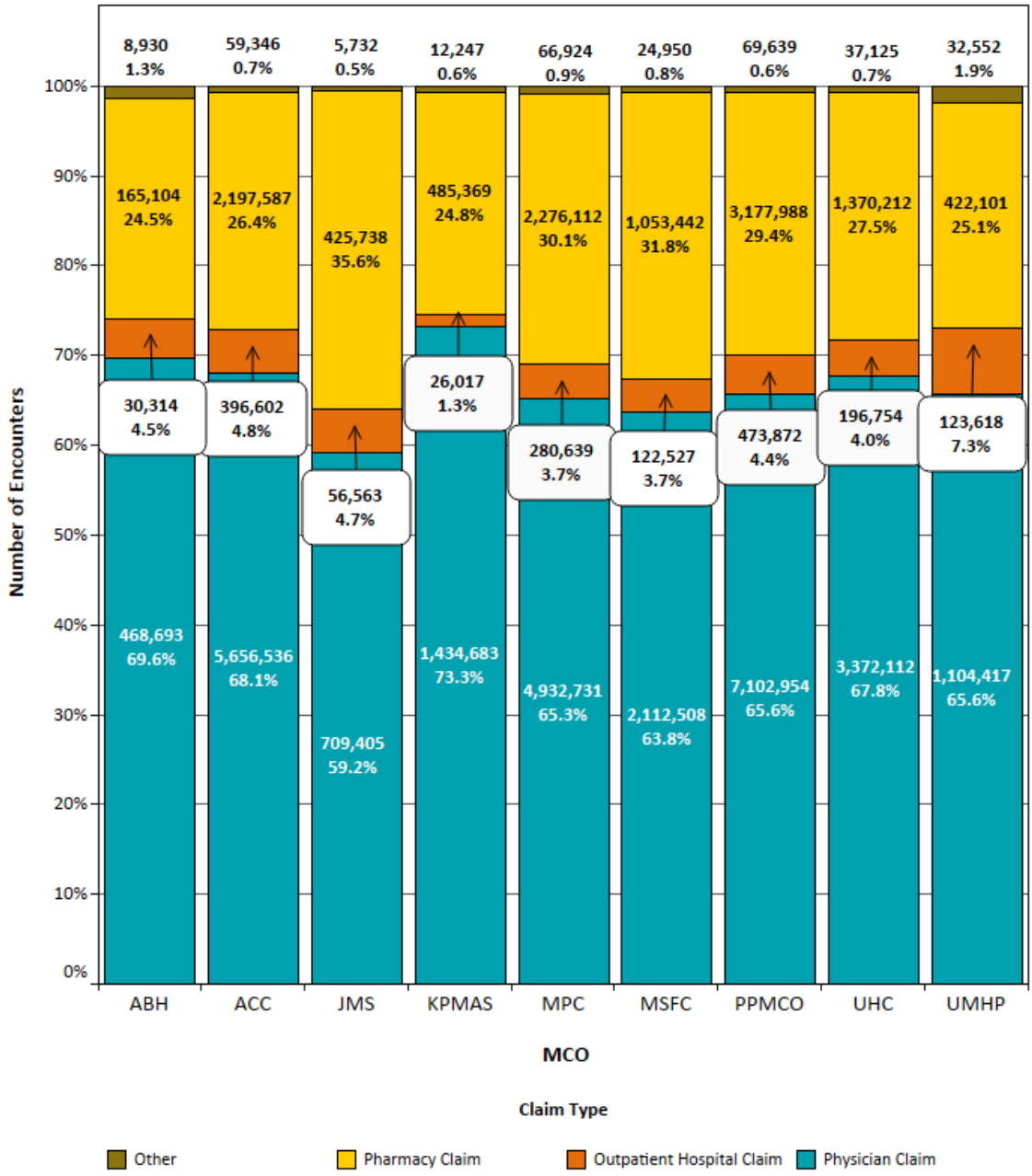
Appendix B. Percentage of Encounters Rejected by EDI Rejection Category, by MCO, CY 2019



Appendix C. Top Three EDI Rejection Descriptions by Number of Rejected Encounters per MCO, CY 2019

MCO	Error Description	CY 2017	MCO	Error Description	CY 2018	MCO	Error Description	CY 2019
ABH			ABH	NPI ON ENC NOT FOUND IN MMIS	1,602	ABH	NPI ON ENC NOT FOUND IN MMIS	5,501
				FACILITY NUMBER NOT VALID	635		FACILITY NUMBER NOT VALID	1,563
				PROC/REV CODE NOT COVD DOS	474		BILLING PROV NUM MISSING	1,406
ACC	RECIP NOT ENRLD W/RPT MCO DOS	193,430	ACC	PROC/REV CODE NOT COVD DOS	53,585	ACC	RECIP NOT ENRLD W/RPT MCO DOS	172,573
	ORIG ICN FD ON HIST ALRD VOID	48,559		FACILITY NUMBER NOT VALID	45,880		PROC/REV CODE NOT COVD DOS	112,196
	FACILITY NUMBER NOT VALID	47,756		NPI ON ENC NOT FOUND IN MMIS	36,250		ORIG ICN FD ON HIST ALRD VOID	39,917
JMS	RECIP NOT ENRLD W/RPT MCO DOS	7,583	JMS	NPI ON ENC NOT FOUND IN MMIS	8,315	JMS	PROC/REV CODE NOT COVD DOS	6,858
	NPI ON ENC NOT FOUND IN MMIS	4,150		PROC/REV CODE NOT COVD DOS	3,193		FIRST DOS NOT STRUCTURED PROP	4,864
	PROC/REV CODE NOT COVD DOS	3,438		RECIP NOT ENRLD W/RPT MCO DOS	1,808		RECIP NOT ENRLD W/RPT MCO DOS	4,605
KPMAS	ORIG ICN N/FOUND ON HISTORY	173,562	KPMAS	UNITS OF SERVICE EQUAL ZERO	47,825	KPMAS	PROVIDER NUMBER NOT VALID	12,715
	UNITS OF SERVICE EQUAL ZERO	41,483		ORIG ICN N/FOUND ON HISTORY	45,590		BILLING PROV NUM MISSING	12,129
	NPI ON ENC NOT FOUND IN MMIS	15,125		NPI ON ENC NOT FOUND IN MMIS	8,680		NPI ON ENC NOT FOUND IN MMIS	12,028
MPC	NPI ON ENC NOT FOUND IN MMIS	47,012	MPC	NPI ON ENC NOT FOUND IN MMIS	67,738	MPC	PROC/REV CODE NOT COVD DOS	58,835
	UNITS OF SERVICE EQUAL ZERO	22,225		PROC/REV CODE NOT COVD DOS	33,234		NPI ON ENC NOT FOUND IN MMIS	34,609
	RECIP NOT ENRLD W/RPT MCO DOS	10,741		RECPT NUMBER NOT 11 NUM DIGITS	22,795		NDC MISSING OR NOT VALID	19,509
MSFC	RECIP NOT ENRLD W/RPT MCO DOS	47,727	MSFC	UNITS OF SERVICE EQUAL ZERO	72,558	MSFC	NPI ON ENC NOT FOUND IN MMIS	29,565
	NPI ON ENC NOT FOUND IN MMIS	35,565		RECIP NOT ENRLD W/RPT MCO DOS	46,084		NDC MISSING OR NOT VALID	22,930
	NDC MISSING OR NOT VALID	19,123		NPI ON ENC NOT FOUND IN MMIS	45,064		BILLING PROV NUM MISSING	15,595
PPMCO	RECIP NOT ENRLD W/RPT MCO DOS	129,374	PPMCO	RECIP NOT ENRLD W/RPT MCO DOS	128,504	PPMCO	RECIP NOT ENRLD W/RPT MCO DOS	159,725
	NDC MISSING OR NOT VALID	80,086		NPI ON ENC NOT FOUND IN MMIS	75,227		NDC MISSING OR NOT VALID	87,773
	NPI ON ENC NOT FOUND IN MMIS	77,316		NDC MISSING OR NOT VALID	62,802		PROC/REV CODE NOT COVD DOS	73,803
UHC	RECIP NOT ENRLD W/RPT MCO DOS	80,469	UHC	RECIP NOT ENRLD W/RPT MCO DOS	87,729	UHC	NPI ON ENC NOT FOUND IN MMIS	68,624
	NPI ON ENC NOT FOUND IN MMIS	69,130		NPI ON ENC NOT FOUND IN MMIS	60,397		RECIP NOT ENRLD W/RPT MCO DOS	67,836
	NDC MISSING OR NOT VALID	42,460		NDC MISSING OR NOT VALID	35,150		PROVIDER NUMBER NOT VALID	51,013
UMHP	NDC MISSING OR NOT VALID	32,113	UMHP	RECIP NOT ENRLD W/RPT MCO DOS	128,844	UMHP	RECIP NOT ENRLD W/RPT MCO DOS	63,729
	RECIP NOT ENRLD W/RPT MCO DOS	24,285		VD/RESB RECD WOUT/ORIG ICN.	23,379		NPI ON ENC NOT FOUND IN MMIS	21,048
	NPI ON ENC NOT FOUND IN MMIS	18,290		NDC MISSING OR NOT VALID	22,075		PROVIDER NUMBER NOT VALID	15,354

Appendix D. Number and Percentage of Encounters, by Claim Type and MCO, CY 2019

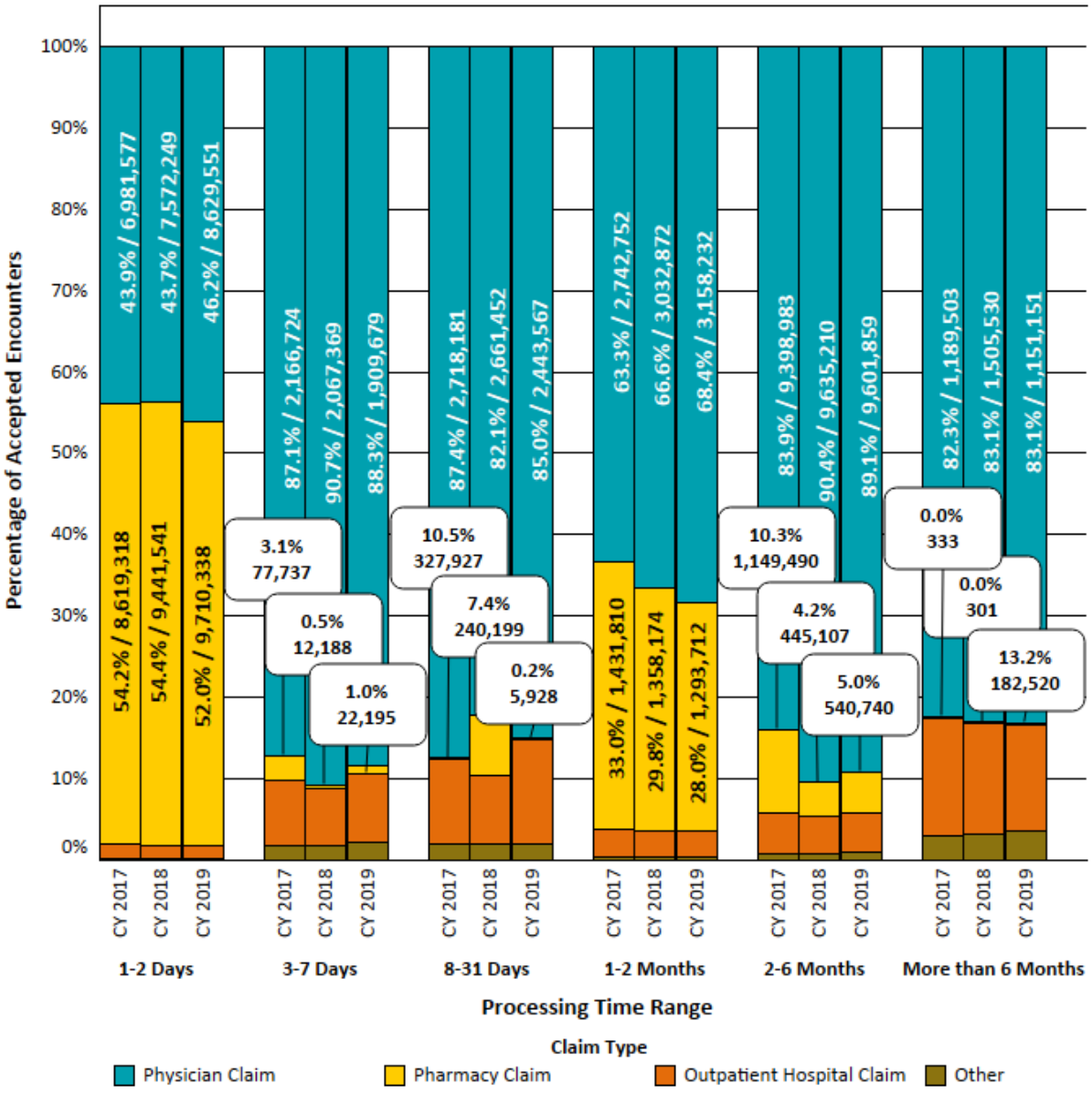


Note: "Other" is a combination of community-based services claims, dental claims, inpatient hospital claims, and long-term care claims.

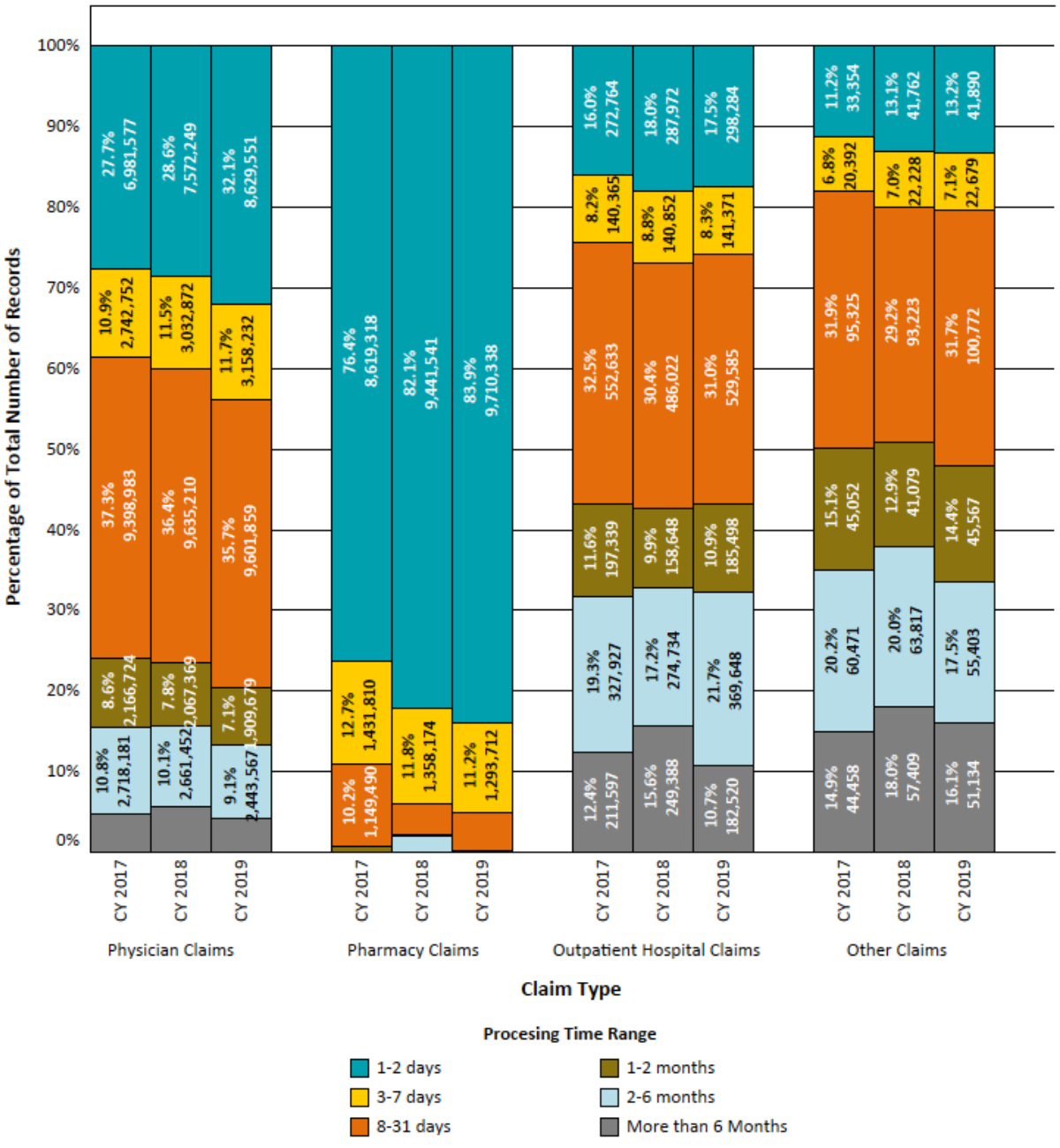
Appendix E. Number of Accepted Medical Encounters by MCO and Pay Category, CY 2019

MCO	Populated		$0		Missing Pay
	CY 2018	CY 2019	CY 2018	CY 2019	CY 2018
ABH	79,091	339,550	44,894	87,926	18,335
ACC	2,165,612	4,378,907	555,194	940,506	2,428,759
JMS	161,564	237,676	392,478	446,829	113,353
KPMAS	599,547	1,351,204	27,526	53,086	664,331
MPC	2,133,862	4,068,056	447,464	715,318	2,225,278
MSFC	604,381	1,083,334	514,780	935,022	863,140
PPMCO	2,774,218	5,385,156	835,213	1,268,342	3,058,433
UHC	1,241,991	2,442,476	436,220	673,823	1,461,742
UMHP	396,252	811,203	107,484	167,333	460,102

Appendix F. Distribution of Accepted Encounters, by Processing Time and Claim Type, CY 2017 to CY 2019



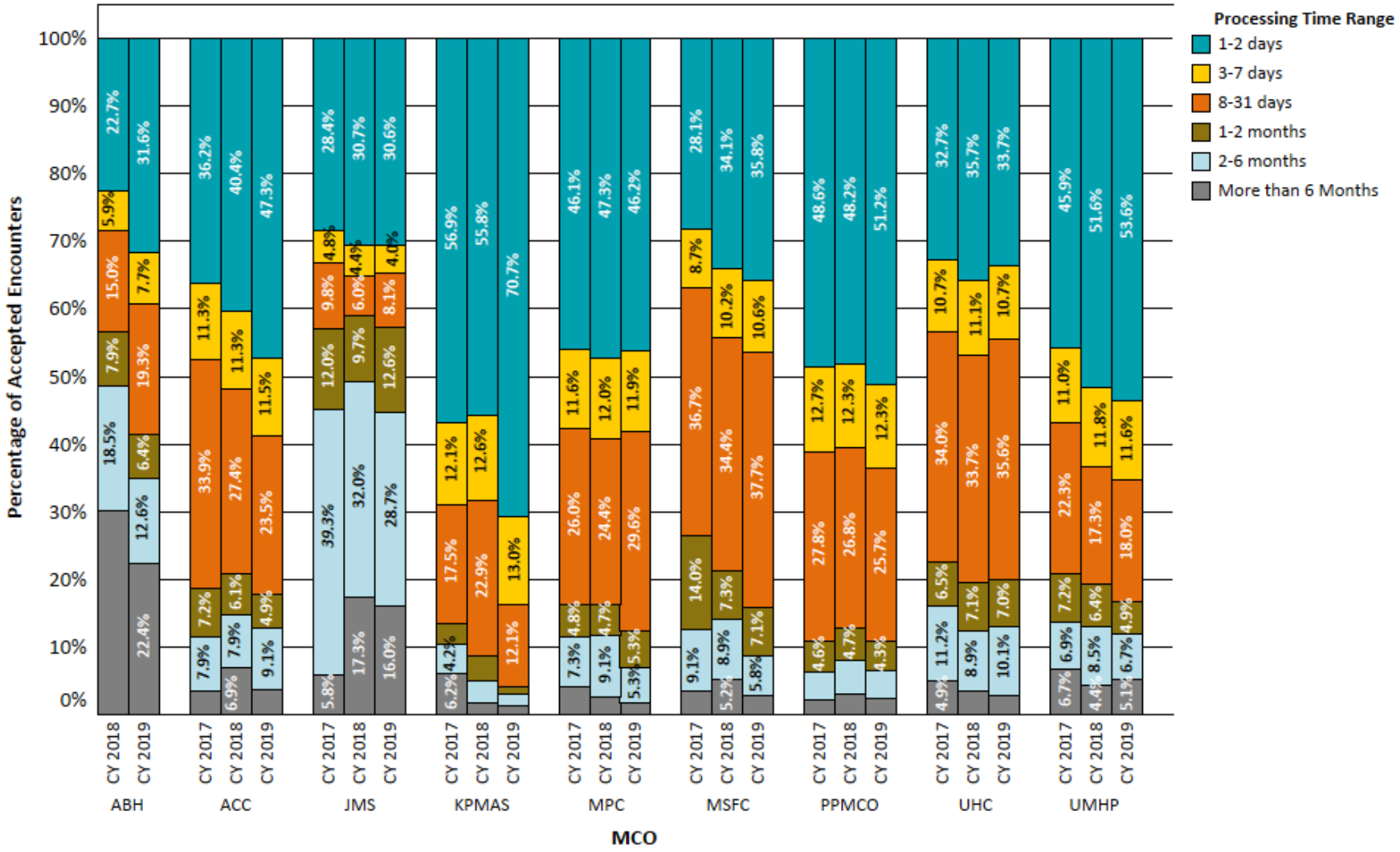
Appendix G. Percentage of the Total Number of Encounters Submitted, by Claim Type and Processing Time, CY 2017 to CY 2019



Appendix H. Distribution of Accepted Encounters Submitted, by MCO and Processing Time, CY 2019

Processing Time Range	ABH	ACC	JMS	KPMAS	MPC	MSFC	PPMCO	UHC	UMHP	Total
1-2 days	**31.63%** 212,861	**47.26%** 3,927,009	**30.65%** 366,958	**70.66%** 1,383,765	**46.15%** 3,487,364	**35.77%** 1,185,178	**51.17%** 5,538,612	**33.69%** 1,676,266	**53.61%** 902,050	**46.13%** **18,680,063**
3-7 days	**7.68%** 51,714	**11.45%** 951,639	**3.99%** 47,792	**13.00%** 254,627	**11.92%** 900,969	**10.64%** 352,704	**12.28%** 1,329,437	**10.70%** 532,314	**11.58%** 194,798	**11.40%** **4,615,994**
8-31 days	**19.33%** 130,105	**23.54%** 1,955,845	**8.12%** 97,282	**12.13%** 237,518	**29.64%** 2,240,016	**37.73%** 1,250,065	**25.75%** 2,787,141	**35.61%** 1,771,850	**18.01%** 303,134	**26.61%** **10,772,956**
1-2 months	**6.37%** 42,864	**4.91%** 408,330	**12.59%** 150,746	**1.23%** 24,005	**5.32%** 401,942	**7.15%** 236,837	**4.31%** 466,455	**7.00%** 348,468	**4.95%** 83,292	**5.34%** **2,162,939**
2-6 months	**12.61%** 84,874	**9.06%** 752,941	**28.66%** 343,127	**1.71%** 33,429	**5.33%** 402,938	**5.83%** 193,115	**4.14%** 447,851	**10.12%** 503,365	**6.71%** 112,906	**7.10%** **2,874,546**
6-7 months	**2.60%** 17,469	**1.07%** 88,574	**3.24%** 38,774	**0.33%** 6,482	**0.38%** 28,338	**0.59%** 19,711	**0.41%** 44,187	**0.77%** 38,246	**0.76%** 12,817	**0.73%** **294,598**
7-12 months	**12.54%** 84,421	**2.09%** 173,793	**12.08%** 144,595	**0.92%** 17,933	**1.06%** 79,884	**1.52%** 50,485	**1.26%** 136,546	**1.88%** 93,324	**2.72%** 45,763	**2.04%** **826,744**
More than 1 Year	**7.24%** 48,733	**0.63%** 51,940	**0.68%** 8,164	**0.03%** 557	**0.20%** 14,955	**0.76%** 25,332	**0.69%** 74,224	**0.25%** 12,370	**1.66%** 27,928	**0.65%** **264,203**
Total	**100.00%** **673,041**	**100.00%** **8,310,071**	**100.00%** **1,197,438**	**100.00%** **1,958,316**	**100.00%** **7,556,406**	**100.00%** **3,313,427**	**100.00%** **10,824,453**	**100.00%** **4,976,203**	**100.00%** **1,682,688**	**100.00%** **40,492,043**

Appendix I. Percentage of Accepted Encounters Submitted, by MCO and Processing Time, CY 2017 to CY 2019



Appendix J. Delivery Codes[19]

Delivery services were identified as any encounter that had one of the ICD-10 diagnosis codes, listed in the table below, during CY 2017 through CY 2019.

Code Type	Codes Used in Analysis
ICD-10 Diagnosis Codes	O61.x, O70.x, O75.x, Z37.0x – Z37.9x , O71.x , O76*, O67.x, O72.x, O77.x, O68*, O73.x, O80*, O69.x, O74.x, O82*, O60.2x, O66.5x, O69.1x, O64.1x, O65.4x, O66.3x

*Only the three-character code listed in the table (e.g., O76 or O80) was included as a valid diagnosis. For all other diagnosis codes, the analysis included all other codes that began with the diagnosis code listed in the table (e.g., O61.x) where x equals any number of digits after the decimal. For example, O61.x, the "x" can represent any number of digits after the decimal (e.g., 061.1 or 061.14).

[19] The CY 2018 report title "Pregnancy Screening Codes" has been refined to "Delivery Codes." The codes are the same as used in past years.

Appendix K. Dementia Codes[20]

Dementia-related services in CY 2019 were identified as any encounter that had one of the ICD-10 diagnosis codes, listed in the table below. These codes indicate services for Alzheimer's disease and other dementias.

In CY 2018 and CY 2019, Hilltop used a more comprehensive diagnostic definition to identify participants with a dementia diagnosis, compared to CY 2017. Starting in CY 2018, ICD-10 diagnosis codes G30 and G31 were included in Hilltop's definition for dementia, and the CY 2018 and CY 2019 analysis should not be compared to what was reported in CY 2017.

Code Type	Codes Used in Analysis
ICD-10 Diagnosis Codes	F00, F01, F02, F03, G30, G31

[20] The CY 2018 report title "Dementia Screening Codes" has been refined to "Dementia Codes." The codes are the same as used in past years.

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