Qlarant

Medicaid Managed Care Organization

Encounter Data Validation Final Report

Calendar Year 2020

Maryland
DEPARTMENT OF HEALTH

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Encounter Data Validation Report

Calendar Year 2020

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 utilize encounter data for managed care program oversight. 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 managed care organizations (MCOs) to make key decisions, establish goals, assess and improve quality of care, monitor program integrity, and determine capitation rates.

Validation of encounter data provides the Maryland Department of Health (MDH) with a level of confidence in the completeness and accuracy of encounter data submitted by the MCOs. 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. As payment methodologies evolve and incorporate value-based payment elements, collecting complete and accurate encounter data is critical.

In compliance with the BBA, MDH contracts with Qlarant to serve as the EQRO for the HealthChoice Program. MDH contracts with The Hilltop Institute at the University of Maryland, Baltimore County (UMBC) to analyze and evaluate the validity of encounter data. Qlarant conducted EDV for calendar year (CY) 2020, encompassing January 1, 2020 through December 31, 2020, for all nine HealthChoice MCOs:

- Aetna Better Health of Maryland (ABH)
- AMERIGROUP Community Care (ACC)
- CareFirst BlueCross BlueShield Community Health Plan (CFCHP)[1]
- 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 (UHC)

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.*[2] 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.

[1] Previously University of Maryland Health Partners (UMHP).
[2] CMS EQRO Protocols

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 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 elected to have Activity 3 completed by The Hilltop Institute, University of Maryland Baltimore County (Hilltop). Hilltop performed an evaluation of all electronic encounter data submitted by the MCOs for CY 2018 through CY 2020 to determine the validity of the encounter data and ensure the data are complete, accurate, and of high quality.

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
- The Hilltop Institute's report, EQR protocol 5, activity 3: Validation of encounter data, CY 2018 to CY 2020.
- Any other information relevant to encounter data validation

MDH sets forth the requirements for collection and submission of encounter data by MCOs in

Section II.I.4, and 5 of the CY 2020 HealthChoice MCO Agreement (page 12) which specifies the encounter data requirements. Appendix N of the contract includes all Code of Maryland Regulations (COMAR) provisions applicable to MCOs, including regulations concerning encounter data. Regulations applying to encounters in CY 2020 are noted in Table 1.

Table 1. CY 2020 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 processes encounters via the Electronic Data Interchange Translator Processing System 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 file transfer protocol. Each MCO may contract a vendor or use data intermediaries to perform encounter data submission.

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 and Remittance Advice Remark Codes 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. 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 are summarized in Table 2 below.

Table 2. CY 2020 ISCA Summary

Information Systems Component	HealthChoice Aggregate
Capable of capturing accurate encounter data?	Yes
Captures all appropriate data elements for claims processing?	Yes
Clean Claims in 30 Days Timeliness Standard	95.89%
Clean Claims in 30 Days Timeliness Rate	98.84%
Electronic professional and facility claims	91.97%

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. Results of Activity 3 are copied here and the full report of Hilltop's encounter data validation can be found in **Appendix A**.

Activity 3 contains the following four required analysis 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 2018 through CY 2020 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.

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 259.5% during the evaluation period. This increase is largely attributed to the addition of provider enrollment encounter edits that went live beginning January 1, 2020 (see Provider-related Encounter Data Validation section below for detail). MDH worked with the MCOs for two years prior to the provider enrollment edits going live to ensure that MCOs' providers were enrolled in FFS (fee-for-service) via the electronic provider revalidation and enrollment portal (ePREP) system, but many providers either failed to enroll by January 1, 2020, or submitted enrollment information that did not align with what was reflected on the encounters submitted to MDH. Rejected encounters due to invalid data experienced the greatest increase—53 percentage points—between CY 2019 and CY 2020.

Step 2. Verify the integrity of the MCO's encounter data files

During CY 2020, the MCOs submitted a total of 39.5 million accepted encounters (records), down from 39.9 and 40.5 million in CY 2018 and CY 2019, respectively. Despite increased enrollment in CY 2020, all

MCOs experienced depressed overall utilization due to the COVID-19 pandemic. 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 41.8 million encounters were submitted in CY 2018, which increased to 46.3 million encounters in CY 2020. Approximately 85% of the CY 2020 encounters were accepted into MMIS2, which is lower than CY 2018 and CY 2019 accepted encounters.

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

The percentage of encounters was consistently distributed across claim types from CY 2018 to CY 2020. At 66.4% in CY 2018 and CY 2019 and 67.4% in CY 2020, physician claims represented most of the encounters during the evaluation period. Of all the encounters accepted into MMIS2 in CY 2020, pharmacy encounters and outpatient hospital encounters accounted for 28.2% and 3.7%, respectively. "Other" encounters—including inpatient hospital stays, community-based services, and long-term care services—accounted for 0.8% of encounters in CY 2018 through CY 2020.

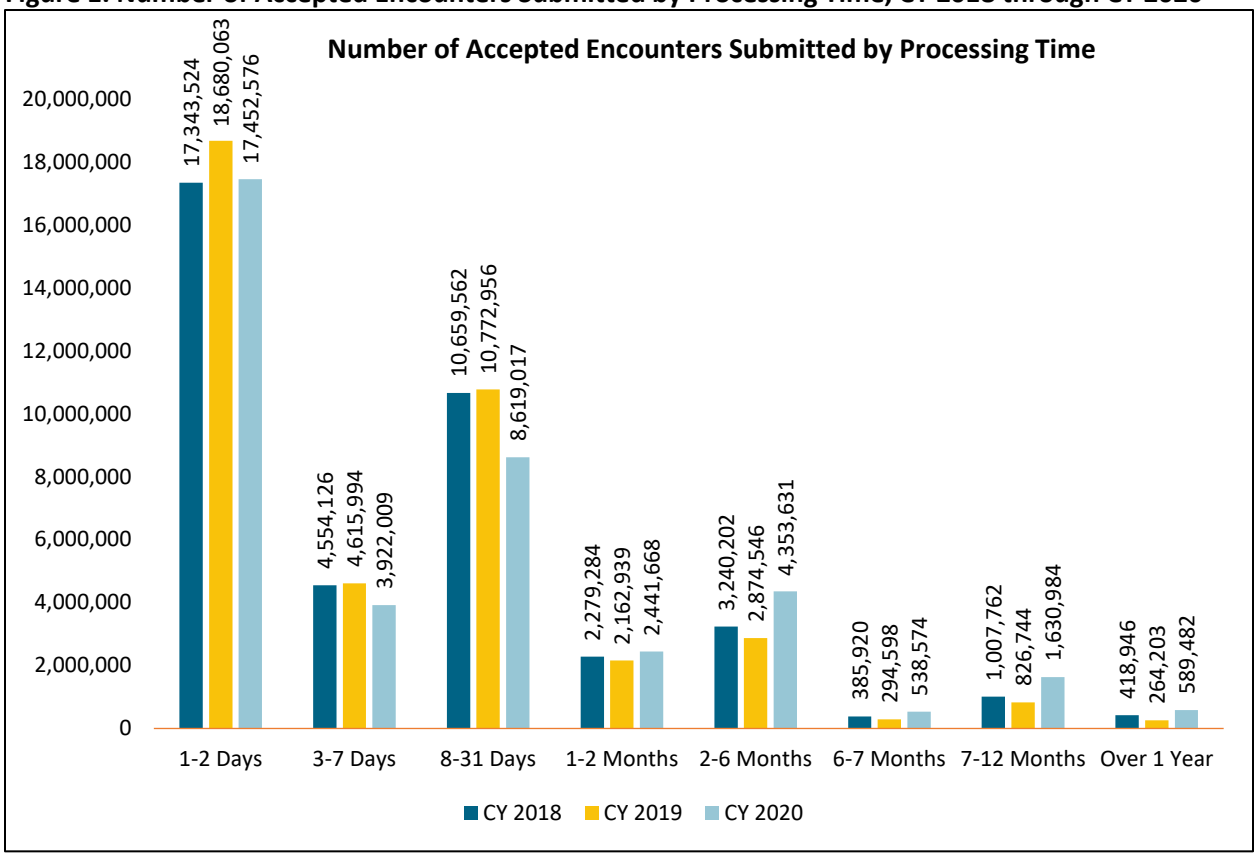
Step 3. Generate and review analytic reports

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 six months. The MCO must then adjudicate the encounter within 30 days of being invoiced. Maryland regulations require MCOs to submit encounter data to MDH "within 60 calendar days after receipt of the claim from the provider." Therefore, the maximum acceptable processing time allotted for an encounter between the end date of service and the date of submission to MDH is eight 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. Fewer MCOs submitted encounters within 1 to 2 days in CY 2020 than in CY 2019. In CY 2020 there was a decrease in encounters submitted within 3 to 7 days, a sharp decrease in encounters submitted within 8 to 31 days, and an increase in encounters submitted within 1 to 2 months and 2 to 6 months. The longer processing times may be attributed to the increase in rejected encounters in CY 2020.

Figure 1. Number of Accepted Encounters Submitted by Processing Time, CY 2018 through CY 2020



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. 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 2020, the percentage of participants with a visit to their assigned PCP, group practice, or partner PCP for each MCO was between 21.9% (PPMCO) and 61.8% (KPMAS) (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 59.8% (CFCHP) to 72.7% (ACC) (excluding ABH). From CY 2018 to CY 2020, the overall percentage of participants with a visit to their assigned PCP and assigned PCP, group practice, or partner PCP decreased by 21.9 and 2.4 percentage points, respectively. The percentage of participants with a visit to any PCP within any MCO's network decreased by 3.2 percentage points during the evaluation period.

Service Type Analysis

The analysis of CY 2018 and CY 2019 inpatient hospitalizations, ED visits, and observation stays serves as baseline data to compare trends to CY 2020 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% of visits each year. ED visits, which were 3.0% of all

visits in CY 2020, ranged from 1.6% of all visits (KPMAS) to 4.1% of all visits (JMS). As shown in the annual HealthChoice evaluation located in Appendix A[3], the overall percentage of the HealthChoice participants with an outpatient ED Visit decreased between CY 2015 and CY 2019 (The Hilltop Institute, 2021).

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 2018 and CY 2020. The areas analyzed were 1) individuals over age 65 with encounters (because this population is ineligible for HealthChoice), 2) individuals with a service date before their date of birth, 3) age-appropriate and sex-appropriate diagnoses for delivery, 4) age-appropriate dementia diagnoses, and 5) children aged 0 to 20 years with dental encounters.

Because participants older than 65 are ineligible for HealthChoice, Hilltop searched for any encounters for those aged 66 or older. Between CY 2018 and CY 2020, across all MCOs, the number of encounters submitted decreased for those who were 66 or older or who did not have a reported date of birth, although the total number of such encounters was lower in CY 2019 than in CY 2020. The MCOs and MDH improved the quality of reporting encounter data for age-appropriate diagnoses in CY 2020.

Hilltop analyzed the volume of participants who had a diagnosis for delivery by age group between CY 2018 and CY 2020. 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 47 in CY 2018, 64 in CY 2019, and 80 in CY 2020. 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 only on encounters for female participants. All MCOs have similar distribution, with nearly 100% of all deliveries being reported for females. Delivery diagnoses for male participants in the encounter data are negligible, accounting for only 45 reported deliveries across all MCOs in CY 2020, an increase from what was reported in CY 2019 (30).

The final analysis focused on age-appropriate diagnoses of dementia from CY 2018 to CY 2020. While dementia is a disease generally associated with older age, 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 dementia. While each MCO does have participants under the age of 30 with a dementia diagnosis, the numbers are relatively small (293 participants were reported across all MCOs in CY 2020).

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.

[3] https://health.maryland.gov/mmcp/healthchoice/Documents/2021%20HealthChoice%20Evaluation%20CY%202015-CY%202019%20FINAL.pdf

Analysis of Medical Records to Confirm Encounter Data Accuracy

Review of enrollees' medical records offers a 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 number, date of birth, date(s) of service, and treatment setting. Targeted follow-up was conducted to providers who had not responded to the initial request, including phone calls and fax requests. 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 identification 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 3. CY 2018 through CY 2020 EDV Minimum Sample Required for Review by Encounter Type

Encounter Type	CY 2018	CY 2019	CY 2020
	Sample Size		
Inpatient	60 (2%)	62 (2%)	64 (3%)
Outpatient	531 (22%)	536 (22%)	484 (20%)
Office Visit	1,853 (76%)	1,854 (76%)	1,906 (78%)
Total	**2,444**	**2,452**	**2,454**

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

Compared to CY 2018 (2,444), the minimum sample required was higher in CYs 2019 (2,452) and 2020 (2,454). The majority of encounters within the required sample size were office visits (78%), followed by outpatient encounters (20%), and inpatient encounters making up the smallest portion (3%).

Table 4. CY 2020 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	12	9	Yes	56	56	Yes	208	208	Yes
ACC	6	6	Yes	56	55	Yes	214	212	Yes
CFCHP	8	8	Yes	60	60	Yes	208	204	Yes
JMS	9	8	Yes	79	74	Yes	192	190	Yes
KPMAS	7	6	Yes	14	14	Yes	258	252	Yes
MPC	6	6	Yes	58	57	Yes	211	210	Yes
MSFC	10	7	Yes	58	57	Yes	211	209	Yes
PPMCO	7	7	Yes	59	59	Yes	217	207	Yes
UHC	7	7	Yes	52	52	Yes	215	214	Yes
Total	**72**	**64**	Yes	**492**	**484**	Yes	**1,934**	**1,906**	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.

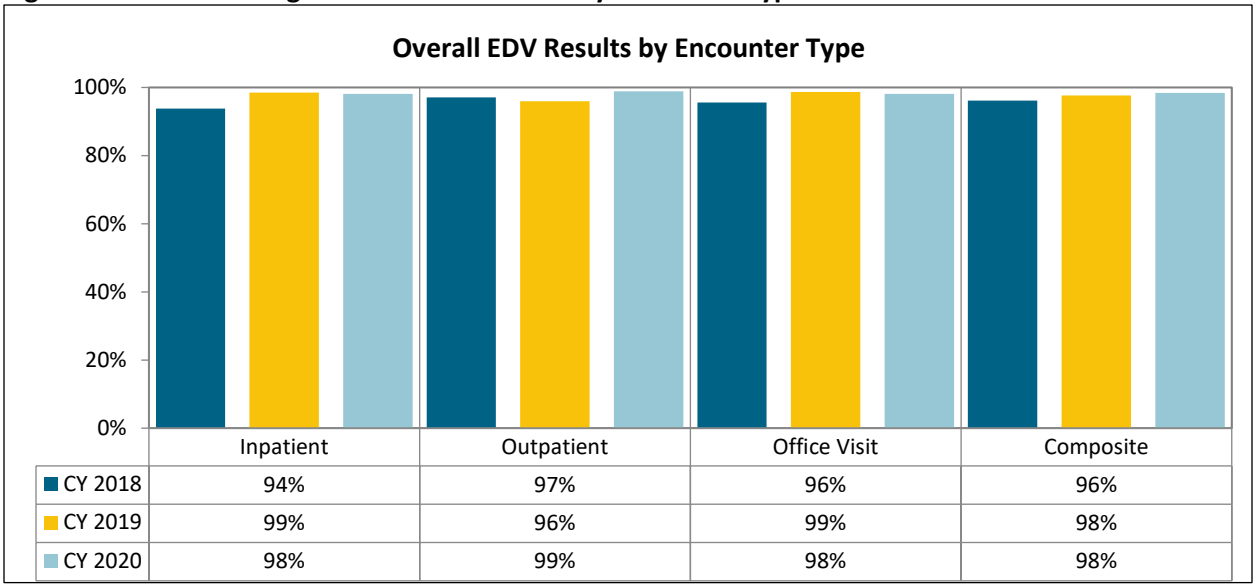
Medical records received were verified against the sample listing and enrollee demographics information from the data file to ensure consistency between submitted encounter data and corresponding medical records. Documentation was noted in the database as to whether the diagnosis, procedure, and if applicable, revenue codes were substantiated by the medical record. For inpatient encounters, the reviewers also verified the principal diagnosis code against the primary sequenced diagnosis. All diagnosis codes, procedure codes, and revenue codes included in the data were validated per record for the EDV. 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 – Determinations were made as “no match” when there was a lack of documentation in the record, coding error(s), or upcoding.
- Invalid – Determinations were made as “invalid” when a medical record 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. When this situation occurred, the reviewer ended the review process.

For CY 2020, Qlarant received 3020 medical records collectively from all nine MCOs. Of the total received records, 17% (522) were deemed invalid. Of the 522 invalid records, 89% (466) were for the office visits setting, 1% (5) and 10% (51) were for outpatient and inpatient settings respectively.

A total of 2,498 medical records were reviewed, slightly more than the 2,454 minimum reviews required. Analysis of the data was organized by review elements including diagnosis, procedure, and revenue codes (applicable only for inpatient and outpatient).

Figure 2. CY 2018 through CY 2020 EDV Results by Encounter Type



The composite match rate across all encounter types showed improvement from CY 2018 (96%) to CY 2019 (98%) and remained the same at 98% for CY 2020.

Table 5. CY 2018 through CY 2020 EDV Results by Encounter Type

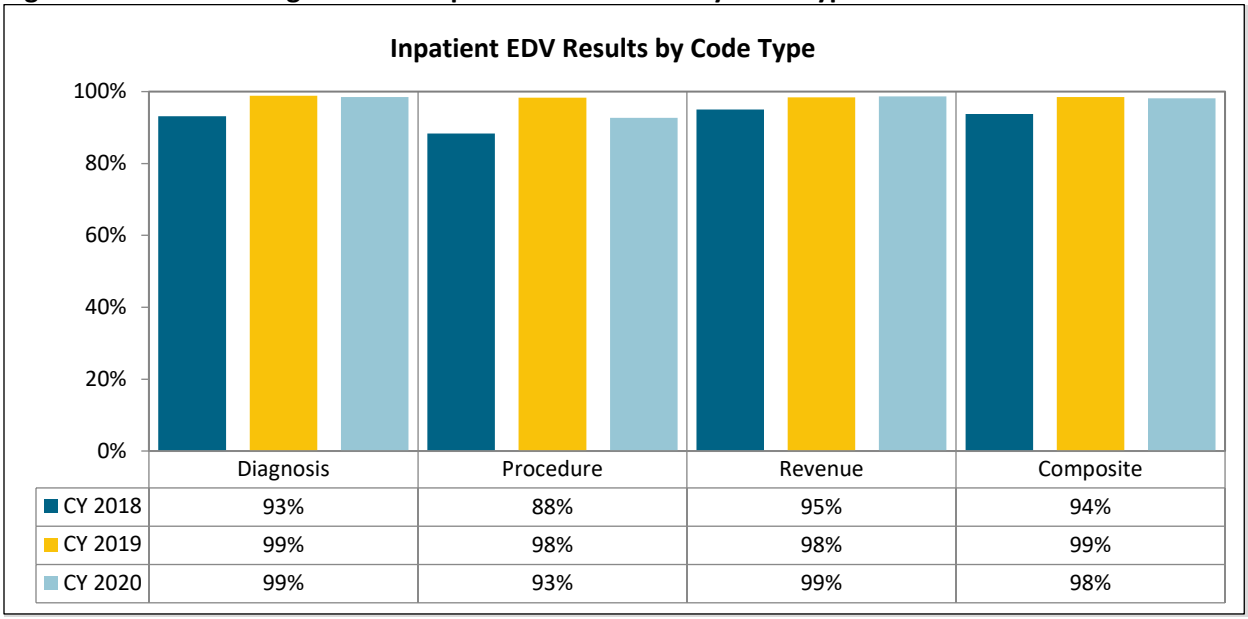
Encounter Type	Records Reviewed			Total Possible Elements*			Total Matched Elements			Percentage of Matched Elements		
	CY 2018	CY 2019	CY 2020	CY 2018	CY 2019	CY 2020	CY 2018	CY 2019	CY 2020	CY 2018	CY 2019	CY 2020
Inpatient	60	63	72	1,289	1,434	1,572	1,209	1,413	1,543	94%	99%	98%
Outpatient	575	538	492	7,386	7,288	6,149	7,170	7,000	6,078	97%	96%	99%
Office Visit	1,871	1,877	1,934	8,597	8,833	8,860	8,220	8,718	8,692	96%	99%	98%
Total	**2,506**	**2,478**	**2,498**	**17,272**	**17,555**	**16,581**	**16,599**	**17,131**	**16,313**	**96%**	**98%**	**98%**

*Possible elements include diagnosis, procedure, and revenue codes.

Compared to CY 2019, CY 2020 match rates for the outpatient setting increased 3 percentage points, while the inpatient setting and the office visit setting declined 1 percentage point.

Inpatient Encounters

Figure 3. CY 2018 through CY 2020 Inpatient EDV Results by Code Type



The CY 2020 composite inpatient encounter match rate (98%) decreased 1 percentage point from CY 2019 (99%), and increased 4 percentage points from CY 2018 (94%).

Table 6. CY 2018 through CY 2020 EDV Inpatient Encounter Type Results by Code

Inpatient Encounter Type	Diagnosis Codes			Procedure Codes			Revenue Codes			Total Codes		
	CY 2018	CY 2019	CY 2020	CY 2018	CY 2019	CY 2020	CY 2018	CY 2019	CY 2020	CY 2018	CY 2019	CY 2020
Match	446	509	593	83	115	115	680	789	835	1,209	1,413	1,543
No Match	33	6	9	11	2	9	36	13	11	80	21	29
Total	479	515	602	94	117	124	716	802	846	1,289	1,434	1,572
Match Percent	**93%**	**99%**	**99%**	**88%**	**98%**	**93%**	**95%**	**98%**	**99%**	**94%**	**99%**	**98%**

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

The CY 2020 diagnosis code match rate (99%) remained the same as CY 2019 (99%) and maintained the 6 percentage point increase from CY 2018 (93%).

The CY 2020 procedure code match rate (93%) decreased 5 percentage points from CY 2019 (98%) and increased 5 percentage points from CY 2018 (88%).

The CY 2020 revenue code match rate (99%) increased 1 percentage point from CY 2019 (98%) and increased 4 percentage points from CY 2018 (95%).

Table 7. MCO Inpatient Results by Code Type

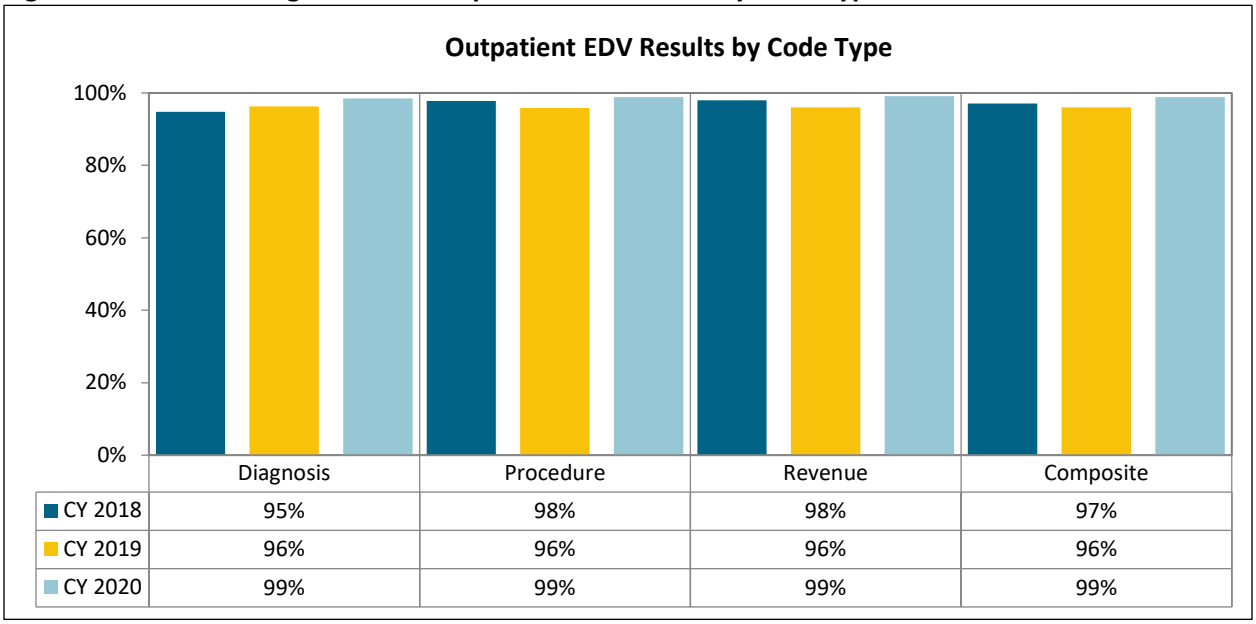
MCO	# of Reviews	Diagnosis Codes			Procedures Codes			Revenue Codes			Total Codes		
		Match	Total	%	Match	Total	%	Match	Total	%	Match	Total	%
ABH	12	91	91	100%	21	21	100%	154	154	100%	266	266	100%
ACC	6	54	55	98%	4	4	100%	65	65	100%	123	124	99%
CFCHP	8	61	63	97%	12	12	100%	107	107	100%	180	182	99%
JMS	9	91	94	97%	16	25	64%	145	155	94%	252	274	92%
KPMAS	7	45	46	98%	18	18	100%	74	74	100%	137	138	99%
MPC	6	50	50	100%	2	2	100%	72	72	100%	124	124	100%
MSFC	10	84	85	99%	19	19	100%	92	93	99%	195	197	99%
PPMCO	7	64	65	98%	13	13	100%	79	79	100%	156	157	99%
UHC	7	53	53	100%	10	10	100%	47	47	100%	110	110	100%

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

Eight of the nine MCOs (all except JMS) achieved a match rate of 97% or greater for inpatient encounters across all code types. JMS' match rate for procedure codes (64%) was significantly lower than all other health plans. Additionally, JMS' match rate for revenue codes (94%) was lower than all other health plans.

Outpatient Encounters

Figure 4. CY 2018 through CY 2020 Outpatient EDV Results by Code Type



Overall, the total match rate for outpatient encounters across all code types increased 3 percentage points from 96% in CY 2019 to 99% in CY 2020 and increased 2 percentage points from the CY 2018 rate of 97%.

Table 8. CY 2018 through CY 2020 EDV Outpatient Encounter Type Results by Code

Outpatient Encounter Type	Diagnosis Codes			Procedure Codes			Revenue Codes			Total Codes		
	CY 2018	CY 2019	CY 2020	CY 2018	CY 2019	CY 2020	CY 2018	CY 2019	CY 2020	CY 2018	CY 2019	CY 2020
Match	1,903	1,782	1,628	2,475	2,447	2,525	2,792	2,771	1,925	7,170	7,000	6,078
No Match	104	68	24	56	104	30	56	116	17	216	288	71
Total	2,007	1,850	1652	2,531	2,551	2,555	2,848	2,887	1,942	7,386	7,288	6,149
Match Percent	**95%**	**96%**	**99%**	**98%**	**96%**	**99%**	**98%**	**96%**	**99%**	**97%**	**96%**	**99%**

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

The CY 2020 outpatient diagnosis code match rate (99%) increased by 3 percentage points from CY 2019 (96%) and increased 4 percentage points from CY 2018 (95%).

The CY 2020 outpatient procedure code match rate (99%) increased by 3 percentage points from CY 2019 (96%) and increased 1 percentage point from CY 2018 (98%).

The CY 2020 outpatient revenue code match rate (99%) increased by 3 percentage points from CY 2019 (96%) and increased 1 percentage point from CY 2018 (98%).

Table 9. MCO Outpatient Results by Code Type

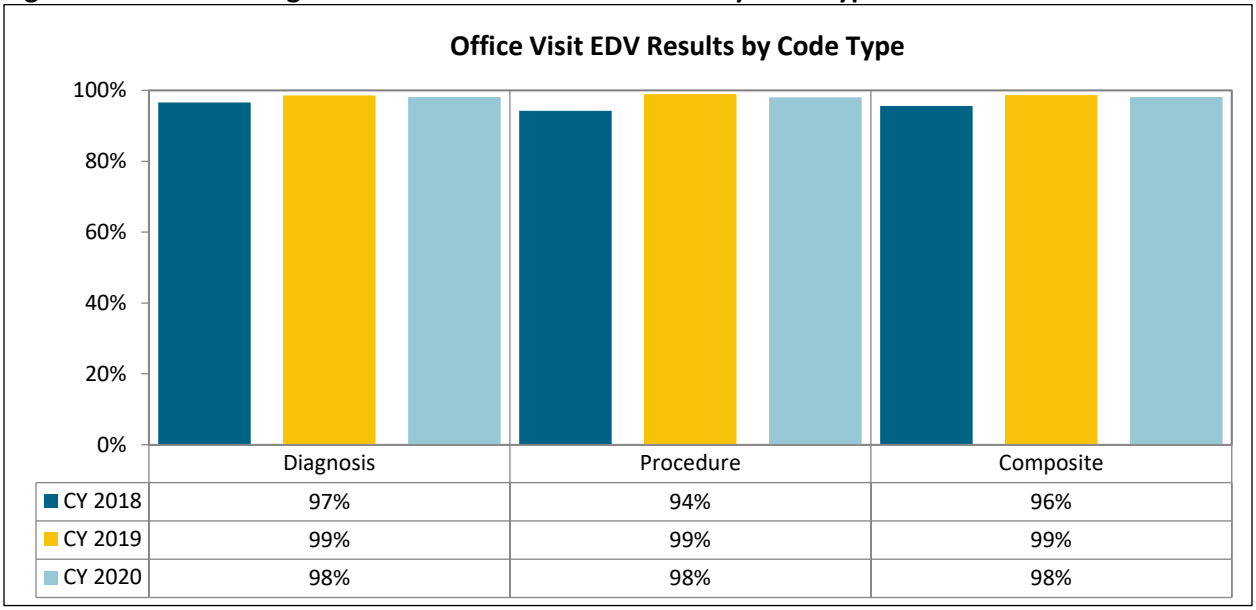
MCO	# of Reviews	Diagnosis Codes			Procedure Codes			Revenue Codes			Total Codes		
		Match	Total	%	Match	Total	%	Match	Total	%	Match	Total	%
ABH	56	179	184	97%	312	313	100%	221	221	100%	712	718	99%
ACC	56	215	223	96%	419	435	96%	311	321	97%	945	979	97%
CFCHP	60	186	189	98%	269	274	98%	220	222	99%	675	685	99%
JMS	79	269	271	99%	359	359	100%	268	269	100%	896	899	100%
KPMAS	14	47	47	100%	106	106	100%	81	81	100%	234	234	100%
MPC	58	192	193	99%	271	271	100%	199	199	100%	662	663	100%
MSFC	58	192	194	99%	282	282	100%	232	232	100%	706	708	100%
PPMCO	59	184	184	100%	240	241	100%	186	189	98%	610	614	99%
UHC	52	164	167	98%	267	274	97%	207	208	100%	638	649	98%

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

MCOs' total match rate across all code types ranged from 97% (ACC) to 100% (JMS, KPMAS, MPC, and MSFC).

Office Visit Encounters

Figure 5. CY 2018 through CY 2020 Office Visit EDV Results by Code Type



Overall, the CY 2020 office visit match rate (98%) decreased by 1 percentage point from CY 2019 (99%) and increased 2 percentage points from CY 2018 (96%).

Table 10. CY 2018 through CY 2020 EDV Office Visit Encounter Type Results by Code*

Office Visit Encounter Type	Diagnosis Codes			Procedure Codes			Total		
	CY 2018	CY 2019	CY 2020	CY 2018	CY 2019	CY 2020	CY 2018	CY 2019	CY 2020
Match	4,991	5,245	5,403	3,229	3,473	3,289	8,220	8,718	8,692
No Match	178	76	102	199	39	66	377	115	168
Total Elements	5,169	5,321	5,505	3,428	3,512	3,355	8,597	8,833	8,860
Match Percent	**97%**	**99%**	**98%**	**94%**	**99%**	**98%**	**96%**	**99%**	**98%**

*Revenue codes are not applicable for office visit encounters.

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

The CY 2020 diagnosis code match rate (98%) decreased by 1 percentage point from CY 2019 (99%) and increased 1 percentage point from CY 2018 (97%).

The CY 2020 procedure code match rate (98%) decreased 1 percentage point from CY 2019 (99%) and increased 4 percentage points from CY 2018 (94%).

Table 11. MCO Office Visit Results by Code Type*

MCO	# of Reviews	Diagnosis Codes			Procedure Codes			Total Codes		
		Match	Total	%	Match	Total	%	Match	Total	%
ABH	208	554	570	97%	383	390	98%	937	960	98%
ACC	214	622	647	96%	435	445	98%	1057	1092	97%
CFCHP	208	621	636	98%	388	394	98%	1009	1030	98%
JMS	192	614	616	100%	305	307	99%	919	923	100%
KPMAS	258	578	580	100%	253	258	98%	831	838	99%
MPC	211	559	572	98%	355	371	96%	914	943	97%
MSFC	211	634	636	100%	429	431	100%	1063	1067	100%
PPMCO	217	625	634	99%	371	375	99%	996	1009	99%
UHC	215	596	614	97%	370	384	96%	966	998	97%

*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, MPC, and UHC) to 100% (JMS and MSFC).

All Encounters "No Match" Summary

Table 12. CY 2018 through CY 2020 Reasons for "No Match" by Encounter Type

Encounter Type	CY 2018							CY 2019							CY 2020						
	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	2	6%	31	94%	N/A	N/A	33	1	17%	5	83%	N/A	N/A	6	0	0%	9	100%	0	0%	9
Outpatient	16	15%	88	85%	N/A	N/A	104	4	6%	64	94%	N/A	N/A	68	2	8%	22	92%	0	0%	24
Office Visit	39	22%	139	78%	N/A	N/A	178	26	34%	50	66%	N/A	N/A	76	27	26%	75	72%	0	0%	102
Procedure																					
Inpatient	4	36%	7	64%	0	0%	11	1	50%	1	50%	N/A	N/A	2	4	44%	5	56%	0	0%	9
Outpatient	9	16%	45	80%	2	4%	56	1	1%	103	99%	N/A	N/A	104	1	3%	29	97%	0	0%	30
Office Visit	104	52%	74	37%	21	11%	199	8	21%	31	79%	N/A	N/A	39	9	14%	57	86%	0	0%	66
Revenue																					
Inpatient	0	0%	36	100%	0	0%	36	0	0%	13	100%	N/A	N/A	13	0	0%	11	100%	0	0%	11
Outpatient	11	20%	44	79%	1	2%	56	4	3%	112	97%	N/A	N/A	116	0	0%	17	100%	0	0%	17

Not Applicable = (N/A)

Lack of documentation accounted for the majority of all diagnosis, procedure, and revenue code mismatches in CY 2020. This is similar to CY 2018 and CY 2019.

In CY 2020, mismatched diagnosis codes due to lack of documentation presented as 100% of inpatient encounters, 92% of outpatient encounters, and 72% of office visit encounters. Coding errors accounted for 8% of outpatient mismatches, and 26% of the office visit mismatches. No inpatient encounter diagnosis codes were mismatched due to coding errors.

Procedure codes in CY 2020 mismatched due to lack of documentation presented as 56% of inpatient encounters, 97% of outpatient encounters, and 86% of office visit encounters. Coding errors accounted for 44% of inpatient encounter mismatches, 3% of outpatient mismatches, and 14% of the office visit procedure code mismatches.

In CY 2020, lack of documentation resulted in 100% of the mismatched revenue codes for inpatient encounters and outpatient encounters. No inpatient or outpatient encounter revenue codes were mismatched due to coding errors.

MCO Encounter Data Validation Results

For CY 2020, all HealthChoice MCOs successfully achieved match rates that equal or score above the standard of 90% in all areas of review.

Table 13. CY 2018 through CY 2020 MCO and HealthChoice Results by Encounter Type

MCO	Inpatient			Outpatient			Office Visits		
	CY 2018	CY 2019	CY 2020	CY 2018	CY 2019	CY 2020	CY 2018	CY 2019	CY 2020
ABH	99%*	99%	100%	98%*	96%	99%	96%*	99%	98%
ACC	95%	95%	99%	98%	98%	97%	95%	97%	97%
CFCHP	54%	95%	99%	97%	99%	99%	96%	99%	98%
JMS	95%	100%	92%	99%	97%	100%	92%	100%	100%
KPMAS	98%	100%	99%	100%	99%	100%	99%	99%	99%
MPC	98%	100%	100%	99%	97%	100%	96%	100%	97%
MSFC	98%	99%	99%	93%	90%	100%	95%	99%	100%
PPMCO	99%	99%	99%	98%	96%	99%	96%	98%	99%
UHC	95%	100%	100%	94%	95%	98%	96%	98%	97%
HealthChoice	94%	99%	98%	97%	96%	99%	96%	99%	98%

*CY 2018 was baseline for ABH as this was their first encounter data review.

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

Aetna Better Health of Maryland

- For CY 2020, ABH achieved match rates above the standard of 90% recommended by Qlarant in all areas of review:
    - 100% for all inpatient codes reviewed; a 1 percentage point increase from 99% CY 2018 and CY 2020.
    - 99% for all outpatient codes reviewed; a 3 percentage point increase from 96% in CY 2019 and a 1 percentage point increase from CY 2018.
    - 98% for all office visit codes reviewed; a 1 percentage point decrease from 99% in CY 2019 and a 2 percentage point increase from CY 2018.

AMERIGROUP Community Care

- ACC achieved match rates above the standard of 90% recommended by Qlarant in all areas of review:
    - 99% for all inpatient codes reviewed; a 4 percentage point increase from 95% CY 2018 and CY 2019
    - 97% for all outpatient codes reviewed; a 1 percentage point decrease from 98% both CY 2018 and CY 2019.
    - 97% for all office visit codes reviewed; consistent with CY 2019 and a 2 percentage point increase from 95% in CY 2018.

CareFirst BlueCross BlueShield Community Health Plan

- CFCHP achieved match rates above the standard of 90% recommended by Qlarant in all of the areas of review:
    - 99% for inpatient codes reviewed; a 4% percentage point increase from 95% in CY 2019 and a significant improvement of 45 percentage points above the CY 2018 rate of 54%, which indicates CFCHP's CY 2018 corrective action plan was implemented effectively.
    - 99% for all outpatient codes reviewed; consistent with CY 2019 and a 2 percentage point increase from the CY 2018 rate of 97%.
    - 98% for all office visit codes reviewed; a decrease of 1 percentage point from the CY 2019 rate of 99% and an increase of 2 percentage points from the CY 2018 rate of 96%.

Jai Medical Systems, Inc.

- JMS achieved match rates above the standard of 90% recommended by Qlarant in all areas of review:
    - 92% for all inpatient codes reviewed; an 8 percentage point decrease from 100% in CY 2019 and a 3 percentage point decrease from 95% in CY 2018.
    - 100% for all outpatient codes reviewed; a 3 percentage point increase from the CY 2019 rate of 97% and a 1 percentage point increase from the CY 2018 rate of 99%.
    - 100% for all office visit codes reviewed; consistent with CY 2019 and an increase of 8 percentage points from the CY 2018 rate of 92%.

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:
    - 99% for all inpatient codes reviewed; a 1 percentage point decrease from the CY 2019 rate of 100% and an increase of 1 percentage point from the CY 2018 rate of 98%.
    - 100% for all outpatient codes reviewed; a 1 percentage point increase from the CY 2019 rate of 99% and consistent with the CY 2018 rate of 100%.
    - 99% for all office visit codes reviewed; consistent with the CY 2018 and CY 2019 rate of 99%.

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; consistent with the CY 2019 rate of 100% and a 2 percentage point increase from the CY 2018 rate of 98%.
    - 100% for all outpatient codes reviewed; an increase of 3 percentage points from the CY 2019 rate of 97% and 1 percentage point above the 99% CY 2018 rate.
    - 97% for all office visit codes reviewed; a decrease of 3 percentage points over the CY 2019 rate of 100% and an increase of 1 percentage point over the 96% CY 2018 rate.

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; consistent with the CY 2019 rate of 99% and an increase of 1 percentage point from the CY 2018 rate of 98%.
    - 100% for all outpatient codes reviewed; a significant increase of 10 percentage points from the CY 2019 rate of 90% and a 7 percentage point increase from the CY 2018 rate of 93%.
    - 100% for all office visit codes reviewed; a 1 percentage point improvement from the CY 2019 rate of 99% and an increase of 5 percentage points from the CY 2018 rate of 95%.

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 CY 2018 and CY 2019 rate of 99%.
    - 99% for all outpatient codes reviewed; a 3 percentage point increase point from the CY 2019 rate of 96% and a 1 percentage point increase from the 98% CY 2018 rate.
    - 99% for all office visit codes reviewed; an increase of 1 percentage point above the CY 2019 rate of 98% and is 3 percentage points above the CY 2018 rate of 96%.

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; consistent with the CY 2019 rate of 100% and a 5 percentage point improvement from the CY 2018 rate of 95%.
    - 98% for all outpatient codes reviewed; an increase of 3 percentage points from the CY 2019 rate of 95% and an increase of 4 percentage points from the CY 2018 rate of 94%. UHC showed continuous improvement over a three-year period.
    - 97% for all office visit codes reviewed; a decrease of 1 percentage point from the CY 2019 rate of 98% and an improvement of 1 percentage point from the CY 2018 rate of 96%.

Corrective Action Plans

For CY 2020 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 2020 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 and Hilltop completed an EDV study for MDH based on an assessment of encounters paid during CY 2020. Qlarant conducted a medical record review on a sample of inpatient, outpatient, and office visit encounters (2,498) 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: 98% for inpatient, 99% for outpatient, and 98% 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 98.84%, with MCO-specific rates ranging from 95% to 100%.
- The CY 2020 composite match rate of 98% is consistent with the CY 2019 rate of 98% and 2 percentage points above the CY 2018 rate of 96%.
- All MCOs met the Qlarant-recommended match rate of 90% for all encounter types reviewed.
- Eight of the nine MCOs achieved a match rate of 97% or greater for inpatient encounters across all code types.
- MSFC displayed significant improvement for the match rate for CY 2020 (100%) for all outpatient codes reviewed when compared to the CY 2019 match rate (90%).
- CFCHP has shown an upward trend in matched inpatient encounters for three successive years.
- UHC has shown an upward trend in matched outpatient encounters for three successive years.
- MSFC and PPMCO have both shown an upward trend in matched office visit encounters for three successive years.

MCO and State Recommendations

- MDH should continue to work with the MCOs to resolve the provider data problems (The Hilltop Institute, 2022).
- MDH should encourage MCOs to work with their providers to ensure that they are enrolled on the date of service and that they know how to check their current status in order to address the rise in rejected encounters (The Hilltop Institute, 2022).
- MDH should continue to monitor monthly submissions to ensure that the MCOs submit data in a timely manner (The Hilltop Institute, 2022).

- MDH should continue to monitor PCP visits by MCO in future encounter data validations (The Hilltop Institute, 2022).
- MDH should continue to review inpatient visit, ED visit, and observation stay data and compare trends in future annual encounter data validations to look for consistency (The Hilltop Institute, 2022).
- MDH should continue to review and audit the participant-level reports that Hilltop generated for delivery, dementia, individuals over age 65, pediatric dental, and missing age outlier data (The Hilltop Institute, 2022).
- 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 133 provider letters were returned to Qlarant for CY 2020, which contained requests for 336 patients.
- Communicate with provider offices and hospitals 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.

Appendix A

Validation of Encounter Data CY 2020

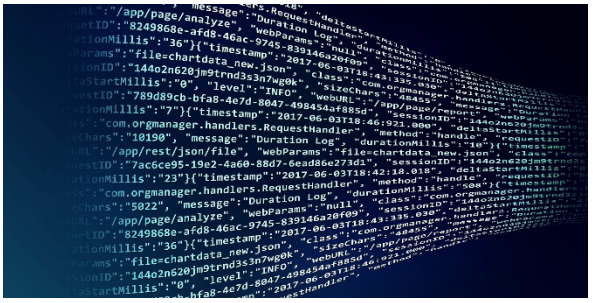
Completed by the Hilltop Institute, University of Maryland Baltimore County (Hilltop)

The Hilltop Institute
UMBC

report

EQR Protocol 5, Activity 3: Validation of Encounter Data, CY 2018 to CY 2020

January 21, 2022



Suggested Citation: The Hilltop Institute. (2021, December). *EQR protocol 5, activity 3: Validation of encounter data, CY 2018 to CY 2020.* Baltimore, MD: UMBC.

EQR Protocol 5, Activity 3: Validation of Encounter Data, CY 2018 to CY 2020

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EQR Protocol 5, Activity 3: Validation of Encounter Data, CY 2018 to CY 2020

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) 2020, close to 90% 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 an MCO and 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 automatically. 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. Hilltop evaluated the new managed care final rule released in November 2020 and found that it 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; 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 as part of the encounter data validation activity. 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, accurate, 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 2018 through CY 2020. 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 2020 encounters by the end of June 2021. In July 2021, Hilltop reviewed the CMS Protocol 5 requirements and encounter data validation activities performed in other states and developed procedures for data validation. Hilltop also participated in the Encounter Data Workgroup meetings with the Department and MCOs regarding the quality of encounter data. Hilltop then confirmed the proposed procedures for

data validation with the Department and 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 2020 dates of service, using data as of October 2021. The review and audit processes for CY 2020 encounters concluded in November 2021.

Activity 3. Analysis of Electronic Encounter Data

In accordance with our 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 the completeness and accuracy of 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; 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 HIPAA 835 compliant file format as well as a 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

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. Paid encounters continued to be an important field to analyze as this field was not complete in CY 2018. During CY 2019, there was improved completion of payment fields for medical encounters. Specifically, MCOs were no longer submitting encounters with missing pay data, and paid fields with $0 consistently remained above 20.0% through the end of CY 2019, though compliance by MCO varied. Since Hilltop was unable to determine how many $0 encounters were denied or sub-capitated, these indicators were part of the CY 2020 analysis. Also, the Department implemented changes to begin accepting the institutional pay field during 2020.

The Department reestablished the technical Encounter Data Workgroup in 2018 with the MCOs to ensure submission of data that are complete, accurate, of high quality, and in compliance with the new requirements for pay fields. In addition, the workgroup provides an opportunity to review the new structure CMS requires for states to submit data, Transformed Medicaid

Statistical Information System (T-MSIS). States must comply with the T-MSIS requirements and follow all guidance for all managed care data submitted to CMS.[5]

Due to the COVID-19 public health emergency, the workgroup paused and reconvened again in July 2021. During the meetings, issues addressed include exception errors, encounter denials, and revalidation/enrollment status during the state of emergency.

Hilltop also had discussions with the Department to review the impact of the provider enrollment edits that took effect in January 2020. As a result of increased provider-related encounter rejections raised as part of the MCO rate setting process, Hilltop met with the Department in May 2021 and further investigated the issue. 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 2018 through CY 2020 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. Hilltop also assessed how many medical encounters with a paid amount of $0 were indicated to be sub-capitated payments or denied payments and compared the amount listed in the pay field to the amount listed in the FFS fee schedule. In addition, Hilltop analyzed the completion of the institutional paid amounts. Finally, Hilltop assessed the MCO provider number 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, the CY 2018 encounter data are considered benchmark data.

[5] See August 10, 2018, letter to State Health Officials (SHO# 18-008) providing guidance to states regarding expectations for Medicaid and CHIP data and ongoing T-MSIS implementation at https://www.medicaid.gov/Federal-Policy-Guidance/downloads/SHO18008.pdf

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 2018 and CY 2020. 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, emergency department (ED) visits, and observation stays. The CY 2018 and CY 2019 analysis provides baseline data and would, in normal circumstances, allow the Department to identify any inconsistencies in utilization patterns for these types of services in CY 2020. The pandemic emergency, however, resulted in declines in health care service utilization across the board, limiting the usefulness of the comparison.

Finally, Hilltop analyzed the 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. Hilltop also conducted an analysis of dental encounters for enrollees aged 0 to 20 years whose dental services should have been paid for through the FFS system.

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 2018 through CY 2020 8ER reports for analysis of encounters that were 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.

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 2018 to CY 2020.

Table 1. Distribution of Encounter Submissions Rejected by EDI Rejection Category, CY 2018–CY 2020

Category For Rejection	CY 2018		CY 2019		CY 2020	
	Number of Rejected	Percent of Total	Number of Rejected	Percent of Total	Number of Rejected	Percent of Total
Missing	725,751	38.4%	595,697	31.5%	1,053,540	15.5%
Not Eligible	638,633	33.8%	814,451	43.0%	450,374	6.6%
Not Valid	317,356	16.8%	334,314	17.7%	4,737,893	69.7%
Inconsistent	113,383	6.0%	46,438	2.5%	78,017	1.1%
Duplicate	96,115	5.1%	103,108	5.4%	480,007	7.1%
Total	**1,891,238**	**100.0%**	**1,894,008**	**100.0%**	**6,799,831**	**100.0%**

Overall, the number of rejected encounters increased by 259.5% during the evaluation period. This increase is largely attributed to the addition of provider enrollment encounter edits that went live on January 1, 2020 (see Provider-related Encounter Data Validation section below for detail). The Department worked with the MCOs for two years prior to the provider enrollment edits going live to ensure that MCOs' providers were enrolled in FFS via the electronic provider revalidation and enrollment portal (ePREP) system, but many providers either failed to enroll by

January 1, 2020, or submitted enrollment information that did not align with what was reflected on the encounters submitted to the Department. Rejected encounters due to invalid data experienced the greatest increase—53 percentage points—between CY 2019 and CY 2020.

Missing data and participants not eligible for MCO services were the two primary reasons encounters were rejected during CY 2018 and CY 2019. In CY 2020, the two most common reasons were missing and invalid data. The number of encounters rejected due to invalid data rose from 317,356 in CY 2018 to 4,737,893 in CY 2020, an increase of 1,392.9%. The count of encounters rejected due to missing data nearly doubled from 595,697 in CY 2018 to 1,053,540 in CY 2020. The number of duplicate encounters increased more than fourfold during the evaluation period. The count of encounters rejected due to inconsistent data was higher in CY 2020 than in CY 2019 but lower than the count in CY 2018. The only category of rejections that demonstrated a decrease in volume is those rejected due to participants' not being eligible for MCO services.

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 2018 through CY 2020.

Table 2. Distribution of Rejected and Accepted Encounter Submissions by MCO, CY 2018–CY 2020

MCO	CY 2018		CY 2019		CY 2020	
	Number of Rejected	Percentage of All Rejected	Number of Rejected	Percentage of All Rejected	Number of Rejected	Percentage of All Rejected
ABH	3,772	0.2%	13,736	0.7%	100,444	1.5%
ACC	272,351	14.4%	469,415	24.8%	1,217,777	17.9%
CFCHP	239,504	12.7%	198,845	10.5%	1,569,819	23.1%
JMS	19,539	1.0%	30,245	1.6%	97,575	1.4%
KPMAS	144,737	7.7%	79,759	4.2%	119,369	1.8%
MPC	222,191	11.7%	189,464	10.0%	1,053,040	15.5%
MSFC	275,397	14.6%	121,688	6.4%	361,709	5.3%
PPMCO	390,459	20.6%	456,593	24.1%	1,450,364	21.3%
UHC	323,288	17.1%	334,263	17.6%	829,734	12.2%
Total	**1,891,238**	**100.0%**	**1,894,008**	**100.0%**	**6,799,831**	**100.0%**

MCO	CY 2018		CY 2019		CY 2020	
	Number of Accepted	Percentage of All Accepted	Number of Accepted	Percentage of All Accepted	Number of Accepted	Percentage of All Accepted
ABH	238,382	0.6%	673,041	1.7%	989,996	2.5%
ACC	8,104,745	20.3%	8,310,071	20.5%	7,708,937	19.5%
CFCHP	1,701,329	4.3%	1,682,688	4.2%	2,237,433	5.7%
JMS	1,167,013	2.9%	1,197,438	3.0%	1,168,449	3.0%
KPMAS	1,822,032	4.6%	1,958,316	4.8%	2,080,743	5.3%
MPC	7,586,969	19.0%	7,556,406	18.7%	7,386,436	18.7%
MSFC	3,390,876	8.5%	3,313,427	8.2%	3,231,387	8.2%
PPMCO	10,767,991	27.0%	10,824,453	26.7%	9,906,093	25.0%
UHC	5,109,989	12.8%	4,976,203	12.3%	4,838,602	12.2%
Total	**39,889,326**	**100.0%**	**40,492,043**	**100.0%**	**39,548,076**	**100.0%**

[6] had the highest share (23.1%) of all rejections in CY 2020, which was a significant increase from 10.5% in CY 2019. Priority Partners (PPMCO) had a 21.3% share in CY 2020, which was a decrease of 2.8 percentage points from CY 2019. Amerigroup Community Care (ACC) had 17.9% of all rejections in CY 2020, which was a decrease from 24.8% in CY 2019 but a 10.4 percentage point increase from 14.4% in CY 2018. Maryland Physicians Care (MPC) had a 15.5% share of all rejections in CY 2020, which was an increase of 5.5 percentage points from CY 2019. UnitedHealthcare Community Plan (UHC) submitted 12.2% of the total rejected encounters in CY 2020—a decrease of 5.4 percentage points from CY 2019.

ABH, Jai Medical Systems (JMS), Kaiser Permanente of the Mid-Atlantic States, Inc. (KPMAS), and MedStar Family Choice, Inc. (MSFC) are the four MCOs with less than 10% of the rejected encounters in CY 2020. MSFC and KPMAS decreased their share of rejections by 9.3 and 5.9

[6] Formerly University of Maryland Health Partners

percentage points from CY 2018 to CY 2020, while ABH and 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 2018 to CY 2020, there was very little variation for each MCO's share of accepted encounters except for ABH and CFCHP, whose share increased by 1.9 and 1.4 percentage points, respectively. For accepted encounter submission shares, the only other MCO to change by more than 1.0 percentage point was PPMCO, which decreased slightly by 2.0 percentage points from CY 2018 to CY 2020.

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 2020.

Table 3. Percentage of Encounters Rejected by EDI Rejection Category by MCO, CY 2020

Category For Rejection	ABH	ACC	CFCHP	JMS	KPMAS	MPC	MSFC	PPMCO	UHC
Duplicate	1.2%	0.8%	28.1%	0.3%	0.3%	0.8%	0.1%	0.2%	2.0%
Not Valid	82.8%	74.9%	59.4%	51.8%	78.6%	79.7%	68.6%	67.7%	71.8%
Inconsistent	0.3%	0.4%	2.6%	0.1%	0.5%	1.4%	0.4%	0.1%	1.7%
Missing	12.9%	19.8%	6.5%	36.7%	13.5%	12.9%	27.8%	20.0%	14.3%
Not Eligible	2.8%	4.1%	3.3%	11.1%	7.1%	5.2%	3.0%	12.1%	10.2%
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

See Appendix A for a graphical representation of Table 3.

The primary reason for the rejection of encounters for all MCOs was the submission of invalid data (ranging from 51.8% to 82.8%). The second most common reason for rejection of encounters for all MCOs except CFCHP was missing data (ranging from 12.9% to 36.7%). For CFCHP, the second most common reason for rejected encounters was duplicate encounters at 28.1%, while for all other MCOs, the percentage of duplicate encounters was at or below 2.0%. Encounters rejected for inconsistencies showed mixed performance across MCOs. While all MCOs had a smaller proportion (percentage) of rejections categorized as "inconsistent" in CY 2020 than in CY 2019, for most, this was a result of having so many more rejections in other categories. Based on total numbers as shown in Table 4 below, ABH, ACC, JMS, KPMAS, and PPMCO showed improvement in this category. The remaining MCOs had more rejections in this category in CY 2020 than in CY 2019.

Table 4 presents the distribution of the reason for rejection and how it changed for each MCO between CY 2018 and CY 2020.

Table 4. Number and Percentage of Encounters Rejected by EDI Rejection Category, by MCO, CY 2018–CY 2020

Category For Rejection	Year	ABH	ACC	CFCHP	JMS	KPMAS	MPC	MSFC	PPMCO	UHC	Total
Duplicate	CY 2018	33 0.9%	30,922 11.4%	6,603 2.8%	218 1.1%	909 0.6%	4,499 2.0%	37,728 13.7%	5,491 1.4%	9,712 3.0%	**96,115 5.1%**
	CY 2019	772 5.6%	42,534 9.1%	14,412 7.2%	1,520 5.0%	2,588 3.2%	8,512 4.5%	5,846 4.8%	12,623 2.8%	14,301 4.3%	**103,108 5.4%**
	CY 2020	1,165 1.2%	9,206 0.8%	440,785 28.1%	325 0.3%	342 0.3%	8,703 0.8%	499 0.1%	2,408 0.2%	16,574 2.0%	**480,007 7.1%**
Inconsistent	CY 2018	142 3.8%	25,843 9.5%	5,659 2.4%	406 2.1%	49,883 34.5%	8,292 3.7%	6,301 2.3%	4,332 1.1%	12,525 3.9%	**113,383 6.0%**
	CY 2019	319 2.3%	17,449 3.7%	8,084 4.1%	210 0.7%	5,634 7.1%	2,975 1.6%	1,171 1.0%	989 0.2%	9,607 2.9%	**46,438 2.5%**
	CY 2020	271 0.3%	5,110 0.4%	41,135 2.6%	125 0.1%	562 0.5%	14,243 1.4%	1,493 0.4%	737 0.1%	14,341 1.7%	**78,017 1.1%**
Missing	CY 2018	2,016 53.4%	62,431 22.9%	41,996 17.5%	9,238 47.3%	69,573 48.1%	99,356 44.7%	150,950 54.8%	155,476 39.8%	134,715 41.7%	**725,751 38.4%**
	CY 2019	7,377 53.7%	83,713 17.8%	39,514 19.9%	3,346 11.1%	34,160 42.8%	68,554 36.2%	68,889 56.6%	150,458 33.0%	139,686 41.8%	**595,697 31.5%**
	CY 2020	12,980 12.9%	241,554 19.8%	102,409 6.5%	35,798 36.7%	16,126 13.5%	136,058 12.9%	100,515 27.8%	289,479 20.0%	118,621 14.3%	**1,053,540 15.5%**
Not Eligible	CY 2018	575 15.2%	79,098 29.0%	141,452 59.1%	5,018 25.7%	7,916 5.5%	49,572 22.3%	54,879 19.9%	180,036 46.1%	120,087 37.1%	**638,633 33.8%**
	CY 2019	1,428 10.4%	284,915 60.7%	74,557 37.5%	11,767 38.9%	7,770 9.7%	70,100 37.0%	16,804 13.8%	233,901 51.2%	113,209 33.9%	**814,451 43.0%**
	CY 2020	2,839 2.8%	50,198 4.1%	52,338 3.3%	10,800 11.1%	8,502 7.1%	54,866 5.2%	10,956 3.0%	175,366 12.1%	84,509 10.2%	**450,374 6.6%**
Not Valid	CY 2018	1,006 26.7%	74,057 27.2%	43,794 18.3%	4,659 23.8%	16,456 11.4%	60,472 27.2%	25,539 9.3%	45,124 11.6%	46,249 14.3%	**317,356 16.8%**
	CY 2019	3,840 28.0%	40,804 8.7%	62,278 31.3%	13,402 44.3%	29,607 37.1%	39,323 20.8%	28,978 23.8%	58,622 12.8%	57,460 17.2%	**334,314 17.7%**
	CY 2020	83,189 82.8%	911,709 74.9%	933,152 59.4%	50,527 51.8%	93,837 78.6%	839,170 79.7%	248,246 68.6%	982,374 67.7%	595,689 71.8%	**4,737,893 69.7%**
Total	**CY 2018**	**3,772 100.0%**	**272,351 100.0%**	**239,504 100.0%**	**19,539 100.0%**	**144,737 100.0%**	**222,191 100.0%**	**275,397 100.0%**	**390,459 100.0%**	**323,288 100.0%**	**1,891,238 100.0%**
	CY 2019	**13,736 100.0%**	**469,415 100.0%**	**198,845 100.0%**	**30,245 100.0%**	**79,759 100.0%**	**189,464 100.0%**	**121,688 100.0%**	**456,593 100.0%**	**334,263 100.0%**	**1,894,008 100.0%**
	CY 2020	**100,444 100.0%**	**1,217,777 100.0%**	**1,569,819 100.0%**	**97,575 100.0%**	**119,369 100.0%**	**1,053,040 100.0%**	**361,709 100.0%**	**1,450,364 100.0%**	**829,734 100.0%**	**6,799,831 100.0%**

The total number of rejected encounters overall increased by 259.5% from CY 2018 to CY 2020. Nearly the entire increase took place between CY 2019 and CY 2020 and is due to issues with provider data (see Provider-Related Encounter Data Validation below). The greatest increase was in the "Not Valid" category, which saw a more than tenfold increase in a single year: from 334,314 in CY 2019 to 4,737,893 in CY 2020.

The number of encounter rejections in the "Duplicate" category declined for five of the nine MCOs. Only CFCHP, UHC, MPC, and ABH had more duplicate rejections in CY 2020 than in CY 2019, although as a percentage of all their rejected encounters, CFCHP was the only MCO with a greater share of duplicates year over year. Nearly all (91.8%) of the duplicates in CY 2020 were from CFCHP.

MCOs had mixed results for the number and percentage of encounters rejected in the "Inconsistent" category. All MCOs' total number of inconsistent rejections fluctuated during the evaluation period. Notable outliers include the steep decline for KPMAS between CY 2018 and CY 2019 (49,883 to 5,634) and the large increase for CFCHP between CY 2019 and CY 2020 (8,084 to 41,135). CFCHP had over half (52.7%) of all rejections for inconsistency in CY 2020.

Except for KPMAS and UHC, all MCOs had more encounter rejections in the "Missing" category in CY 2020 than in CY 2019. ACC is especially notable due to its increase of 188.5% between CY 2019 and CY 2020 (from 83,713 to 241,554 encounters rejected for missing data). All MCOs except ABH and KPMAS had fewer encounters rejected in the "Not Eligible" category in CY 2020 than in CY 2019, although the count in CY 2018 was the lowest during the evaluation period for JMS and MPC.

The "Not Valid" category made up the majority of rejections for all MCOs in CY 2020 and was higher than the previous two years for each one. The impact of invalid data was not even across MCOs, however, with JMS having just over half (51.8%) of its rejections in this category on the low end and ABH with 82.8% at the high end.

Provider-Related Encounter Data Validation

Hilltop conducted additional analyses of the 8ER reports to review the high rates of encounters failing initial EDI edits—particularly invalid data—for CY 2020. Further research revealed that the 8ER high rejection rates are related to provider enrollment issues. The provider data, which is collected via ePREP, had some changes that affected data beginning January 1, 2020. After two years of collaborative preparation with the MCOs, the provider system implemented new rules requiring the National Provider Identifier (NPI) on any encounter to match the active NPI under which the provider enrolled with Medicaid for both the billing and rendering fields. In order to remain actively enrolled with Medicaid, providers must perform actions like updating their licensure on the ePREP portal. Failure to do so can impact a provider's active status and thus jeopardize the successful submission of encounters. Prior to 2020, a provider could use any NPI on the encounter; as long as it matched any active NPI in MMIS, the encounter linked with that provider/claim was accepted. These changes—intended to promote better accuracy of provider details—were implemented in response to CMS requirements. See Appendix B for a list of rejection codes first divided into those relating to provider data and all others, then subdivided by error category for CY 2020 encounters.

Table 5 presents the breakdown of rejected encounters by MCO, divided into provider-related and all other rejections. For more specific information about the top three MCO-specific EDI rejection codes (errors), see Appendix C.

Table 5. Number of Rejected Encounters with Provider-Related Rejection Type, by MCO, CY 2018–CY 2020

Rejection Type	MCO	CY 2018	CY 2019	CY 2020
Provider-related	ABH	2,668	10,288	95,201
	ACC	111,753	80,766	1,104,866
	CFCHP	28,494	62,169	984,199
	JMS	10,105	5,767	79,853
	KPMAS	31,454	52,955	107,954
	MPC	105,138	70,815	950,933
	MSFC	86,764	71,397	341,033
	PPMCO	122,252	97,499	1,198,930
	UHC	136,820	173,470	697,113
	Subtotal	**635,448**	**625,126**	**5,560,082**
Other	ABH	1,104	3,448	5,243
	ACC	160,598	388,649	112,911
	CFCHP	211,010	136,676	585,620
	JMS	9,434	24,478	17,722
	KPMAS	113,283	26,804	11,415
	MPC	117,053	118,649	102,107
	MSFC	188,633	50,291	20,676
	PPMCO	268,207	359,094	251,434
	UHC	186,468	160,793	132,621
	Subtotal	**1,255,790**	**1,268,882**	**1,239,749**
Total		**1,891,238**	**1,894,008**	**6,799,831**

Every MCO had a significant increase in the number of provider-related rejections during CY 2020. The impact was least heavy on KPMAS, whose count roughly doubled from CY 2019 to CY 2020. All other MCOs had between four and more than ten times as many rejections related to provider errors in CY 2020 than in CY 2019.

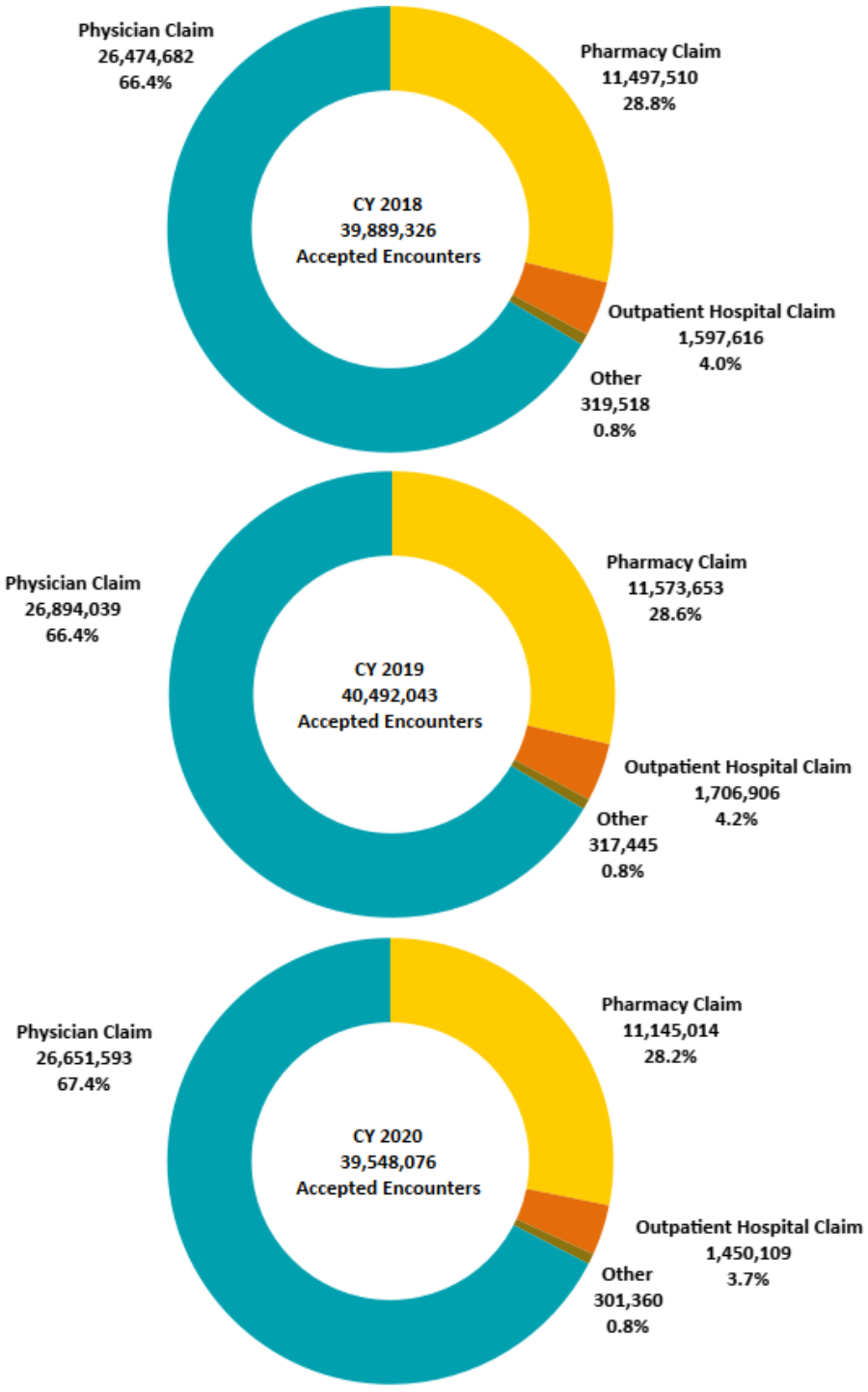
Step 2. Encounter Data Macro-Analysis—Verification of Data Integrity

During CY 2020, the MCOs submitted a total of 39.5 million accepted encounters (records), down from 39.9 in CY 2018 and 40.5 million in CY 2019. Despite increased enrollment in CY 2020, all MCOs experienced decreased overall utilization due to the COVID-19 pandemic. 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 41.8 million encounters were submitted in CY 2018, which increased to 46.3 million encounters in CY 2020. Approximately 85% of the CY 2020 encounters were accepted into MMIS2, which is lower than the 95% acceptance rate during CY 2018 and CY 2019.

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 2018 to CY 2020.

Figure 1. Number and Percentage of Accepted Encounter Submissions by Claim Type, CY 2018–CY 2020



The percentage of encounters was consistently distributed across claim types from CY 2018 to CY 2020. At 66.4% in CY 2018 and CY 2019 and 67.4% in CY 2020, physician claims represented most of the encounters during the evaluation period. Of all the encounters accepted into MMIS2 in CY 2020, pharmacy encounters and outpatient hospital encounters accounted for 28.2% and

3.7%, respectively. "Other" encounters—including inpatient hospital stays, community-based services, and long-term care services—accounted for 0.8% of encounters in CY 2018 through CY 2020.

Table 6 provides the percentage and number of encounters by claim type for each MCO in CY 2018 to CY 2020.

Table 6. Distribution of Accepted Encounters, by Claim Type and MCO, CY 2018–CY 2020

Claim Type	Year	ABH	ACC	CFCHP	JMS	KPMAS	MPC	MSFC	PPMCO	UHC
Physician Claim	CY 2018	73.0%	68.8%	68.8%	58.9%	72.7%	65.0%	63.7%	65.5%	66.4%
		173,944	5,576,838	1,169,934	687,893	1,324,970	4,934,269	2,158,695	7,054,378	3,393,761
	CY 2019	69.6%	68.1%	65.6%	59.2%	73.3%	65.3%	63.8%	65.6%	67.8%
		468,693	5,656,536	1,104,417	709,405	1,434,683	4,932,731	2,112,508	7,102,954	3,372,112
	CY 2020	71.7%	66.4%	77.4%	62.6%	74.0%	65.9%	67.0%	64.3%	70.7%
		709,927	5,115,977	1,731,798	731,706	1,540,478	4,866,194	2,163,553	6,369,837	3,422,123
Pharmacy Claim	CY 2018	21.1%	26.5%	24.2%	36.8%	24.9%	30.1%	30.8%	29.6%	29.0%
		50,297	2,148,714	411,499	429,537	454,451	2,283,293	1,045,091	3,190,789	1,483,839
	CY 2019	24.5%	26.4%	25.1%	35.6%	24.8%	30.1%	31.8%	29.4%	27.5%
		165,104	2,197,587	422,101	425,738	485,369	2,276,112	1,053,442	3,177,988	1,370,212
	CY 2020	23.9%	28.1%	18.5%	33.6%	24.5%	29.7%	28.6%	31.2%	25.2%
		236,632	2,162,803	412,828	392,016	509,958	2,195,708	924,461	3,093,170	1,217,438
Outpatient Hospital Claim	CY 2018	4.6%	3.9%	5.6%	3.9%	1.7%	4.0%	4.4%	4.2%	3.8%
		11,077	316,337	95,986	44,933	30,480	301,331	147,731	455,721	194,020
	CY 2019	4.5%	4.8%	7.3%	4.7%	1.3%	3.7%	3.7%	4.4%	4.0%
		30,314	396,602	123,618	56,563	26,017	280,639	122,527	473,872	196,754
	CY 2020	3.4%	4.9%	3.3%	3.4%	0.8%	3.4%	3.6%	3.9%	3.4%
		33,887	373,886	73,827	39,863	17,162	251,207	115,213	382,663	162,401
Other	CY 2018	1.3%	0.8%	1.4%	0.4%	0.7%	0.9%	1.2%	0.6%	0.8%
		3,064	62,856	23,910	4,650	12,131	68,076	39,359	67,103	38,369
	CY 2019	1.3%	0.7%	1.9%	0.5%	0.6%	0.9%	0.8%	0.6%	0.7%
		8,930	59,346	32,552	5,732	12,247	66,924	24,950	69,639	37,125
	CY 2020	1.0%	0.7%	0.8%	0.4%	0.6%	1.0%	0.9%	0.6%	0.8%
		9,550	56,271	18,980	4,864	13,145	73,327	28,160	60,423	36,640
Total	**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**	**1,701,329**	**1,167,013**	**1,822,032**	**7,586,969**	**3,390,876**	**10,767,991**	**5,109,989**
	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**	**1,682,688**	**1,197,438**	**1,958,316**	**7,556,406**	**3,313,427**	**10,824,453**	**4,976,203**
	CY 2020	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
		989,996	**7,708,937**	**2,237,433**	**1,168,449**	**2,080,743**	**7,386,436**	**3,231,387**	**9,906,093**	**4,838,602**

The distribution of encounters is relatively consistent across MCOs and calendar years. In CY 2020, physician encounters ranged from 62.6% of encounters (JMS) to 77.4% of encounters (CFCHP). JMS had the largest percentage of CY 2020 pharmacy encounters (33.6%), while CFCHP had the lowest percentage (18.5%). Outpatient hospital encounters ranged from a low of 0.8% for KPMAS to a high of 4.9% for ACC. KPMAS had the lowest rate of outpatient hospital claims for all calendar years; we reviewed historical Kaiser HFMRs 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 2020, see Appendix D.

Table 7 illustrates the distribution of all enrolled HealthChoice participants and the volume of accepted encounters for each MCO during CY 2018[7] through CY 2020.

Table 7. Percentage of Participants and Accepted Encounters by MCO, CY 2018–CY 2020

MCO	CY 2018		CY 2019		CY 2020	
	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%	3.8%	2.5%
ACC	23.5%	20.3%	23.3%	20.5%	22.8%	19.5%
CFCHP	4.6%	4.3%	4.6%	4.2%	4.3%	5.7%
JMS	2.4%	2.9%	2.4%	3.0%	2.3%	3.0%
KPMAS	6.0%	4.6%	6.4%	4.8%	7.3%	5.3%
MPC	18.6%	19.0%	18.2%	18.7%	17.5%	18.7%
MSFC	8.3%	8.5%	8.1%	8.2%	7.8%	8.2%
PPMCO	25.5%	27.0%	25.4%	26.7%	24.7%	25.0%
UHC	13.2%	12.8%	12.7%	12.3%	12.3%	12.2%
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, CFCHP, ABH, and JMS. The distribution of accepted encounters among MCOs in CY 2018 through CY 2020 is proportional to the participant distribution among the MCOs for those years. For example, in CY 2020, PPMCO had 24.7% of all HealthChoice participants and 25.0% of all MMIS2 encounters.

Managed Care Regulations: Accurate and Complete Encounter Data

In 2016, CMS issued its final rule updating Medicaid managed care regulations.[8] One of the new requirements specified that MCOs must submit encounter data that are accurate and complete by January 2018.[9] 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[10] that included technical modifications; however, it did not include changes to the EQR and encounter data reporting regulations.

In 2010, the Department and the MCOs worked together to ensure complete and accurate submission of paid amounts on pharmacy encounters. Pharmacy encounter data flow through a point of sale (POS) system, ensuring data accuracy at the time of submission. For nearly a

[7] In CY 2019, Hilltop updated the logic used to exclude a small number of adult dental claims. This caused CY 2018 data to change slightly.
[8] 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).
[9] 42 CFR § 438.818(a)(2).
[10] 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).

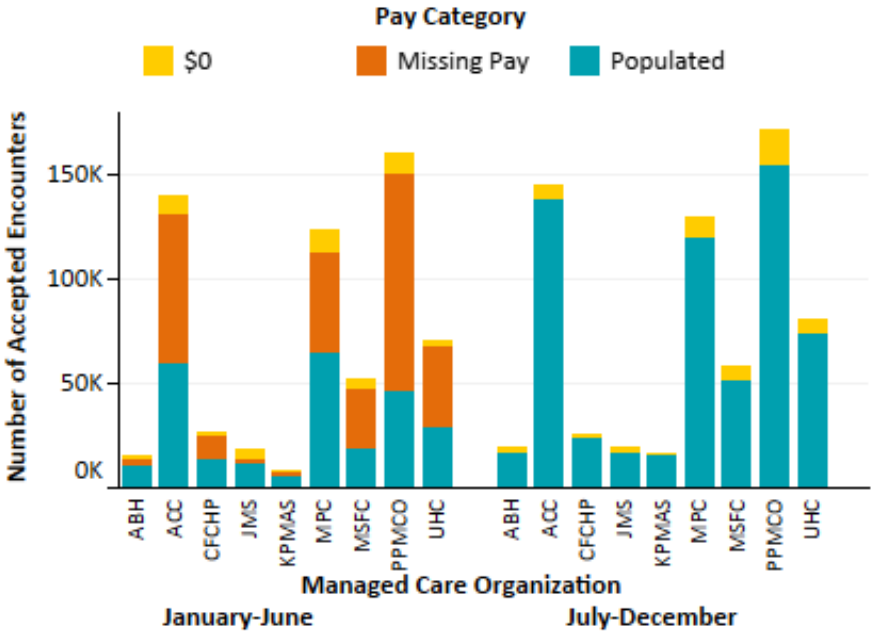
decade, pharmacy encounters have been reliable, and the Department has confidence in the integrity and quality of these pay data. Beginning in October 2017, the Department used the pharmacy paid encounter process as a framework to begin receiving pay data for all encounters.

Department staff prepared MMIS2 to accept pay data for all encounters in the fall of 2017, convened technical MCO workgroups, and updated the 837 Companion Guides for professional (medical) and institutional encounters. Soon after MCOs began submitting pay data for all encounters in January 2018, Department staff identified 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 $0 (separated by denied and sub-capitated), and how many were populated. The Department shared its 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 mid-2020; MMIS2 now 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.

Figure 2 displays the distribution of pay category for each MCO's accepted institutional encounter data in CY 2020.

Figure 2. Count of Accepted Institutional Encounters by MCO and Pay Category, CY 2020



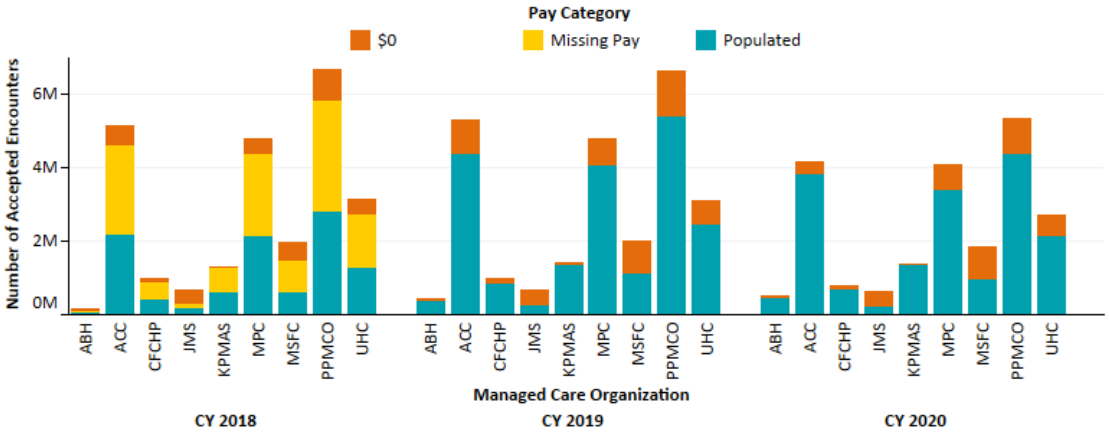
Pay Category	MCO	January-June	July-December
$0	ABH	1,951	2,361
	ACC	9,180	6,962
	CFCHP	2,867	2,312
	JMS	4,587	2,885
	KPMAS	316	1,036
	MPC	11,403	10,192
	MSFC	4,296	6,556
	PPMCO	10,323	16,593
	UHC	3,412	6,312
Missing Pay	ABH	3,490	0
	ACC	71,883	0
	CFCHP	11,030	0
	JMS	2,589	0
	KPMAS	2,718	0
	MPC	47,931	0
	MSFC	29,404	0
	PPMCO	104,129	0
	UHC	38,875	0
Populated	ABH	10,128	16,674
	ACC	59,353	138,164
	CFCHP	13,028	23,599
	JMS	10,980	16,593
	KPMAS	5,092	15,678
	MPC	64,430	119,540
	MSFC	18,039	51,642
	PPMCO	46,203	154,918
	UHC	28,575	74,093

Beginning in mid-2020, no MCO had any institutional encounters with a missing pay amount. The results from April and May of that year show that significant improvement had already begun. All MCOs increased the number of institutional encounters with a populated pay amount during 2020, but several also increased the number of institutional encounters with a $0 pay amount, including KPMAS, MSFC, PPMCO, and UHC.

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 and continued throughout CY 2019. In addition, by August 2018, MCOs were no longer submitting medical encounters with missing pay data. MCOs continued to provide pay data on accepted medical encounters during CY 2020. All MCOs submitted a portion of their medical encounters with $0 pay, but the issue was most pronounced with JMS and MSFC, as shown in Figure 3 below.

Figure 3 displays the distribution of pay category for each MCO's accepted medical encounter data in CY 2018 through CY 2020. See Appendix E for the number of accepted medical encounters by MCO and pay category for CY 2020.

Figure 3. Number of Accepted Medical Encounters, by MCO and Pay Category, CY 2018–CY 2020



Year	Pay Category	ABH	ACC	CFCHP	JMS	KPMAS	MPC	MSFC	PPMCO	UHC
CY 2018	Missing Pay	12.9%	47.2%	47.7%	17.0%	51.4%	46.3%	43.5%	45.9%	46.6%
		18,335	2,428,759	460,102	113,353	664,331	2,225,278	863,140	3,058,433	1,461,742
	Populated	55.6%	42.1%	41.1%	24.2%	46.4%	44.4%	30.5%	41.6%	39.6%
		79,091	2,165,612	396,252	161,564	599,547	2,133,862	604,381	2,774,218	1,241,991
	$0	31.5%	10.8%	11.2%	58.8%	2.1%	9.3%	26.0%	12.5%	13.9%
		44,894	555,194	107,484	392,478	27,526	447,464	514,780	835,213	436,220
	Subtotal	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
		142,320	**5,149,565**	**963,838**	**667,395**	**1,291,404**	**4,806,604**	**1,982,301**	**6,667,864**	**3,139,953**
CY 2019	Populated	79.4%	82.3%	82.9%	34.7%	96.2%	85.0%	53.7%	80.9%	78.4%
		339,550	4,378,907	811,203	237,676	1,351,204	4,068,056	1,083,334	5,385,156	2,442,476
	$0	20.6%	17.7%	17.1%	65.3%	3.8%	15.0%	46.3%	19.1%	21.6%
		87,926	940,506	167,333	446,829	53,086	715,318	935,022	1,268,342	673,823
	Subtotal	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
		427,476	**5,319,413**	**978,536**	**684,505**	**1,404,290**	**4,783,374**	**2,018,356**	**6,653,498**	**3,116,299**
CY 2020	Populated	81.3%	91.1%	85.6%	34.0%	96.6%	83.0%	50.9%	81.9%	78.5%
		427,437	3,813,960	680,020	209,224	1,332,909	3,384,552	936,837	4,381,528	2,132,482
	$0	18.7%	8.9%	14.4%	66.0%	3.4%	17.0%	49.1%	18.1%	21.5%
		98,213	374,433	114,605	405,416	47,118	691,817	904,435	970,711	585,247
	Subtotal	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
		525,650	**4,188,393**	**794,625**	**614,640**	**1,380,027**	**4,076,369**	**1,841,272**	**5,352,239**	**2,717,729**

During CY 2020, JMS submitted two-thirds of its medical encounters with a $0 pay amount, and MSFC submitted nearly half of its medical encounters the same way. All other MCOs ranged from 3.4% (KPMAS) to 21.5% of accepted medical encounters with $0 pay.

Figure 4 displays the percentage of accepted encounters with a $0 pay field with the sub-capitated reporting indicator (05), the denied reporting indicator (09), and no indicator by MCO.

Figure 4. Accepted Encounters with $0 Pay Data by Reporting Indicator (05/09) by MCO, CY 2020

$0 Reporting Indicator	ABH	ACC	CFCHP	JMS	KPMAS	MPC	MSFC	PPMCO	UHC	All MCOs
Sub-capitated (05)	0.1%	0.0%	0.0%	11.5%	15.5%	0.0%	23.9%	6.9%	0.0%	**8.0%**
Denied (09)	80.0%	31.9%	29.3%	7.1%	20.1%	0.1%	29.5%	40.7%	62.4%	**31.0%**
No Indicator	19.9%	68.1%	70.7%	81.5%	64.4%	99.9%	46.6%	52.4%	37.6%	**61.0%**
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

Adherence to the requirement that encounters with $0 pay include a reporting indicator varied greatly between the MCOs during CY 2020. Only ABH, MSFC, and UHC submitted fewer than half of their $0 pay encounters without an indicator. By contrast, MPC submitted nearly all their $0 encounters without an indicator.

Hilltop also analyzed the accepted encounters during CY 2020 by comparing the price paid against the price listed for the same service on the FFS fee schedule. Of the more than 20 million encounters in this analysis, 26% match the FFS fee schedule exactly. Nearly 60% of encounters had some degree of difference between the amount paid by MCOs and the amount specified in the fee schedule, with the greatest portion having more than 20% variance. KPMAS had the smallest proportion of encounters submitted with $0 pay, demonstrating the MCO's extensive use of the pay fields. The Department should continue to work with the MCOs to ensure that appropriate utilization and accuracy of the pay field on accepted encounters improves.

Hilltop determined that third party liability (TPL) was reported inconsistently across MCOs, with some MCOs reporting up to 95% of their encounters with a positive TPL amount in a sample of trauma encounters from CY 2019, while others reported no encounters with a positive TPL amount in the same time period. Fee-for-service claims generally had positive TPL amounts in 1-3% of cases. Therefore, Hilltop no longer uses the MCO-reported TPL amount in any analyses beginning in CY 2019.

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

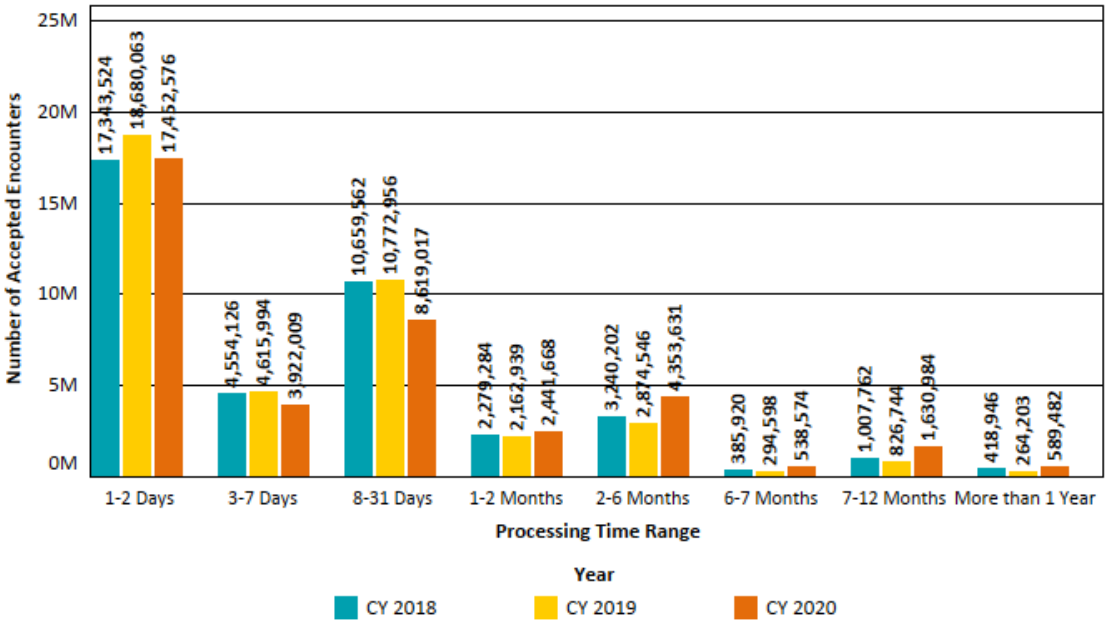
Time Dimension Analysis

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.[11, 12] Maryland regulations require MCOs to submit encounter data to the Department "within 60 calendar days after receipt of the claim from the provider."[13] 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 eight 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. Figure 4 shows the timeliness of processing accepted encounter submissions from the end date of service for CY 2018 through CY 2020.

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

Figure 5. Number of Accepted Encounters Submitted by Processing Time, CY 2018–CY 2020



Note for Figure 5 and Tables 8-10: 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.

Fewer MCOs submitted encounters within 1 to 2 days in CY 2020 than in CY 2019. In CY 2020, there was a decrease in encounters submitted within 3 to 7 days, a sharp decrease in encounters submitted within 8 to 31 days, and an increase in encounters submitted within 1 to 2 months and 2 to 6 months. The longer processing times may be attributed to the increase in rejected encounters in CY 2020.

Table 8 shows the processing times for encounters submitted by claim type for CY 2018 through CY 2020.

Table 8. Distribution of the Total Number of Accepted Encounters Submitted, by Claim Type and Processing Time, CY 2018–CY 2020

Processing Time Range	Pharmacy Claim			Physician Claim			Outpatient Hospital Claim			Other		
	CY 2018	CY 2019	CY 2020	CY 2018	CY 2019	CY 2020	CY 2018	CY 2019	CY 2020	CY 2018	CY 2019	CY 2020
1-2 days	82.1%	83.9%	83.3%	28.6%	32.1%	29.4%	18.0%	17.5%	20.0%	13.1%	13.2%	16.3%
	9,441,541	9,710,338	9,284,451	7,572,249	8,629,551	7,829,006	287,972	298,284	290,059	41,762	41,890	49,060
3-7 days	11.8%	11.2%	11.0%	11.5%	11.7%	9.6%	8.8%	8.3%	7.7%	7.0%	7.1%	7.7%
	1,358,174	1,293,712	1,229,931	3,032,872	3,158,232	2,557,495	140,852	141,371	111,235	22,228	22,679	23,348
8-31 days	3.9%	4.7%	5.3%	36.4%	35.7%	28.3%	30.4%	31.0%	27.2%	29.2%	31.7%	32.5%
	445,107	540,740	596,126	9,635,210	9,601,859	7,530,801	486,022	529,585	394,196	93,223	100,772	97,894
1-2 months	0.1%	0.2%	0.2%	7.8%	7.1%	8.1%	9.9%	10.9%	14.5%	12.9%	14.4%	14.3%
	12,188	22,195	25,139	2,067,369	1,909,679	2,163,246	158,648	185,498	210,294	41,079	45,567	42,989
2-6 months	2.1%	0.1%	0.1%	10.1%	9.1%	14.9%	17.2%	21.7%	21.2%	20.0%	17.5%	19.1%
	240,199	5,928	8,798	2,661,452	2,443,567	3,979,681	274,734	369,648	307,591	63,817	55,403	57,561
More than 6 Months	0.0%	0.0%	0.0%	5.7%	4.3%	9.7%	15.6%	10.7%	9.4%	18.0%	16.1%	10.1%
	301	740	569	1,505,530	1,151,151	2,591,238	249,388	182,520	136,730	57,409	51,134	30,503
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%**
	11,497,510	**11,573,653**	**11,145,014**	**26,474,682**	**26,894,039**	**26,651,467**	**1,597,616**	**1,706,906**	**1,450,105**	**319,518**	**317,445**	**301,355**

Table 9 displays the monthly processing time for submitted encounters in CY 2018 through CY 2020.

Table 9. Percentage of Accepted Encounters Submitted, by Month and Processing Time, CY 2018–CY 2020[14]

Processing Time Range	Year	January	February	March	April	May	June	July	August	September	October	November	December	Annual Total
1-2 days	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%**
	CY 2020	34.0%	35.2%	46.8%	48.8%	46.8%	51.4%	42.9%	47.4%	49.3%	45.3%	46.7%	43.6%	**44.1%**
3-7 days	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%**
	CY 2020	9.6%	9.6%	6.4%	12.0%	12.3%	10.5%	11.2%	12.2%	11.3%	10.2%	7.7%	7.8%	**9.9%**
8-31 days	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%**
	CY 2020	20.9%	23.4%	19.2%	18.9%	21.0%	19.6%	21.8%	21.6%	18.5%	24.0%	25.2%	25.9%	**21.8%**
1-2 months	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%**
	CY 2020	8.1%	5.2%	8.1%	5.2%	5.1%	4.2%	5.6%	4.0%	5.5%	6.8%	6.4%	8.4%	**6.2%**
2-6 months	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%**
	CY 2020	14.0%	14.6%	11.0%	6.8%	6.2%	8.0%	12.3%	9.3%	11.2%	10.1%	10.6%	13.1%	**11.0%**
6-7 months	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%**
	CY 2020	2.0%	1.6%	0.6%	0.7%	3.0%	0.9%	0.9%	1.6%	1.1%	1.1%	2.5%	0.4%	**1.4%**
7-12 months	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%**
	CY 2020	6.7%	5.7%	5.1%	6.1%	4.4%	5.1%	5.0%	3.6%	2.9%	2.5%	1.0%	0.8%	**4.1%**
More than 1 Year	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%**
	CY 2020	4.8%	4.6%	2.8%	1.4%	1.3%	0.3%	0.2%	0.2%	0.1%	0.0%	0.0%	0.0%	**1.5%**
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%**

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

Table 10 displays processing times for encounters submitted to the Department by MCO from CY 2018 to CY 2020.

Table 10. Percentage of Accepted Encounters Submitted, by MCO and Processing Time, CY 2018–CY 2020

MCO	1-2 days			3-7 days			8-31 days			1-2 months		
	CY 2018	CY 2019	CY 2020	CY 2018	CY 2019	CY 2020	CY 2018	CY 2019	CY 2020	CY 2018	CY 2019	CY 2020
ABH	22.7%	31.6%	33.2%	5.9%	7.7%	7.0%	15.0%	19.3%	17.4%	7.9%	6.4%	6.8%
ACC	40.4%	47.3%	45.4%	11.3%	11.5%	10.3%	27.4%	23.5%	21.0%	6.1%	4.9%	6.2%
CFCHP	51.6%	53.6%	37.1%	11.8%	11.6%	7.1%	17.3%	18.0%	10.9%	6.4%	4.9%	4.3%
JMS	30.7%	30.6%	28.3%	4.4%	4.0%	3.7%	6.0%	8.1%	9.4%	9.7%	12.6%	12.7%
KPMAS	55.8%	70.7%	51.1%	12.6%	13.0%	12.1%	22.9%	12.1%	20.5%	3.7%	1.2%	7.2%
MPC	47.3%	46.2%	44.4%	12.0%	11.9%	10.0%	24.4%	29.6%	22.1%	4.7%	5.3%	5.1%
MSFC	34.1%	35.8%	30.4%	10.2%	10.6%	8.2%	34.4%	37.7%	32.0%	7.3%	7.1%	9.2%
PPMCO	48.2%	51.2%	53.7%	12.3%	12.3%	11.5%	26.8%	25.7%	21.4%	4.7%	4.3%	4.7%
UHC	35.7%	33.7%	37.7%	11.1%	10.7%	9.7%	33.7%	35.6%	25.9%	7.1%	7.0%	7.6%

MCO	2-6 months			6-7 months			7-12 months			More than 1 Year		
	CY 2018	CY 2019	CY 2020	CY 2018	CY 2019	CY 2020	CY 2018	CY 2019	CY 2020	CY 2018	CY 2019	CY 2020
ABH	18.5%	12.6%	13.3%	7.0%	2.6%	3.3%	17.2%	12.5%	11.3%	6.1%	7.2%	7.7%
ACC	7.9%	9.1%	12.5%	1.4%	1.1%	0.9%	3.7%	2.1%	2.8%	1.8%	0.6%	1.0%
CFCHP	8.5%	6.7%	15.6%	1.1%	0.8%	3.9%	2.6%	2.7%	19.8%	0.7%	1.7%	1.3%
JMS	32.0%	28.7%	31.0%	4.8%	3.2%	3.7%	11.5%	12.1%	5.0%	1.0%	0.7%	6.1%
KPMAS	3.2%	1.7%	5.1%	0.4%	0.3%	0.7%	1.4%	0.9%	2.9%	0.1%	0.0%	0.4%
MPC	9.1%	5.3%	11.0%	0.6%	0.4%	1.3%	1.6%	1.1%	4.3%	0.4%	0.2%	1.8%
MSFC	8.9%	5.8%	14.1%	1.2%	0.6%	2.0%	3.1%	1.5%	2.7%	0.9%	0.8%	1.4%
PPMCO	5.0%	4.1%	6.5%	0.4%	0.4%	0.6%	1.2%	1.3%	1.2%	1.4%	0.7%	0.5%
UHC	8.9%	10.1%	10.9%	0.9%	0.8%	1.5%	2.1%	1.9%	4.5%	0.5%	0.2%	2.1%

Of all MCOs, only ABH, PPMCO, and UHC submitted a higher percentage of their encounters within 1 to 2 days in CY 2020 than in CY 2019. In CY 2020, the percentage of encounters submitted by MCOs within 1 to 2 days ranged from 28.3% (JMS) to 53.7% (PPMCO). The submission of encounters within 3 to 7 days decreased for all nine MCOs. JMS had the lowest percentage of encounters submitted within 1 to 2 days and 3 to 7 days in CY 2020.

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 11 shows the distribution of all HealthChoice participants enrolled for any length of time who received a PCP service by MCO during CY 2018 through CY 2020.

Table 11. Number and Percentage of HealthChoice Participants (Any Period of Enrollment) with a PCP Visit by MCO, CY 2018–CY 2020

	Year	ABH	ACC	CFCHP	JMS	KPMAS	MPC	MSFC	PPMCO	UHC	Total
Number of Participants (any period of enrollment)	CY 2018	21,615	326,719	63,463	32,957	82,798	258,807	114,508	354,934	182,703	**1,438,504**
	CY 2019	40,404	320,789	61,974	32,605	87,330	249,947	111,008	350,199	174,910	**1,429,166**
	CY 2020	51,493	317,922	59,074	32,190	101,836	243,956	108,474	344,597	170,645	**1,430,187**
Percentage of participants with a visit with any PCP in any MCO network	CY 2018	10.3%	75.1%	59.1%	67.9%	59.7%	67.3%	61.9%	71.5%	67.3%	**68.0%**
	CY 2019	8.1%	76.0%	60.6%	69.8%	64.1%	69.6%	65.0%	73.9%	71.2%	**69.4%**
	CY 2020	6.9%	72.7%	59.8%	68.6%	64.9%	68.2%	66.4%	66.4%	59.9%	**64.8%**
Percentage of participants with a visit with their assigned PCP	CY 2018	2.1%	39.6%	23.3%	1.0%	50.1%	29.9%	27.6%	20.2%	34.7%	**29.9%**
	CY 2019	1.1%	39.2%	22.0%	1.2%	49.8%	30.0%	24.2%	21.7%	33.0%	**29.3%**
	CY 2020	0.3%	12.2%	4.4%	0.7%	0.0%	5.9%	3.5%	13.0%	6.0%	**8.0%**
Percentage of participants with a visit with their assigned PCP, group practice, or partner PCPs	CY 2018	3.1%	57.1%	36.0%	45.7%	55.4%	47.4%	43.2%	22.3%	46.3%	**42.2%**
	CY 2019	2.6%	61.8%	37.9%	50.9%	60.9%	51.5%	45.1%	24.8%	47.1%	**44.8%**
	CY 2020	2.0%	57.5%	35.6%	50.9%	61.8%	45.3%	40.5%	21.9%	32.3%	**39.8%**

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 an 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 submitted to Hilltop for the PCP analysis. Please also read ABH's results with caution; the MCO only began providing acceptable files in 2021.

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 2020, the percentage of participants with a visit to their assigned PCP, group practice, or partner PCP for each MCO was between 21.9% (PPMCO) and 61.8% (KPMAS) (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 59.8% (CFCHP) to 72.7% (ACC) (excluding ABH). From CY 2018 to CY 2020, the overall percentage of participants with a visit to their assigned PCP and to any of their assigned PCP, group practice, or partner PCP

decreased by 21.9 and 2.4 percentage points, respectively. The percentage of participants with a visit to any PCP within any MCO's network decreased by 3.2 percentage points during the evaluation period.

Service Type Analysis

The analysis of CY 2018 and CY 2019 inpatient hospitalizations, ED visits, and observation stays serves as baseline data to compare trends to CY 2020 encounter data. Table 12 shows the number and percentage of encounter visits for each service type, by MCO, for CY 2018 to CY 2020.

Table 12. Number and Percentage of Inpatient Visits, ED Visits, and Observation Stays, CY 2018–CY 2020

	Year	ABH	ACC	CFCHP	JMS	KPMAS	MPC	MSFC	PPMCO	UHC	Total
Number of Visits	CY 2018	105,638	4,066,620	764,310	493,254	832,237	3,970,844	1,632,551	5,457,692	2,528,972	**19,852,118**
	CY 2019	328,124	4,145,541	779,491	507,459	873,544	3,986,950	1,650,018	5,522,652	2,443,667	**20,237,446**
	CY 2020	432,167	3,604,824	671,679	461,007	797,758	3,564,836	1,495,891	4,718,567	2,131,056	**17,877,785**
Percentage of All Visits	CY 2018	0.5%	20.5%	3.9%	2.5%	4.2%	20.0%	8.2%	27.5%	12.7%	**100.0%**
	CY 2019	1.6%	20.5%	3.9%	2.5%	4.3%	19.7%	8.2%	27.3%	12.1%	**100.0%**
	CY 2020	2.4%	20.2%	3.8%	2.6%	4.5%	19.9%	8.4%	26.4%	11.9%	**100.0%**
Number of Inpatient Visits	CY 2018	1,013	24,222	5,693	3,378	5,302	24,769	9,871	33,665	14,206	**122,119**
	CY 2019	2,808	24,061	7,491	3,898	6,146	23,985	9,526	32,586	13,723	**124,224**
	CY 2020	3,792	21,966	5,009	3,510	6,603	21,181	8,590	28,685	12,717	**112,053**
Percentage of Visits that were Inpatient	CY 2018	1.0%	0.6%	0.7%	0.7%	0.6%	0.6%	0.6%	0.6%	0.6%	**0.6%**
	CY 2019	0.9%	0.6%	1.0%	0.8%	0.7%	0.6%	0.6%	0.6%	0.6%	**0.6%**
	CY 2020	0.9%	0.6%	0.7%	0.8%	0.8%	0.6%	0.6%	0.6%	0.6%	**0.6%**
Number of ED Visits	CY 2018	5,229	109,846	35,068	23,451	18,116	160,857	62,405	201,630	94,837	**711,439**
	CY 2019	14,182	147,082	34,031	25,176	17,500	150,968	60,520	196,441	88,629	**734,529**
	CY 2020	15,762	109,255	23,287	18,740	13,001	110,516	43,988	138,115	62,984	**535,648**
Percentage of Visits that were ED	CY 2018	4.9%	2.7%	4.6%	4.8%	2.2%	4.1%	3.8%	3.7%	3.8%	**3.6%**
	CY 2019	4.3%	3.5%	4.4%	5.0%	2.0%	3.8%	3.7%	3.6%	3.6%	**3.6%**
	CY 2020	3.6%	3.0%	3.5%	4.1%	1.6%	3.1%	2.9%	2.9%	3.0%	**3.0%**
Number of Observation Stays	CY 2018	266	3,180	1,887	1,267	792	10,077	3,255	9,350	6,120	**36,194**
	CY 2019	643	7,329	1,915	1,542	968	10,196	3,366	9,768	6,080	**41,807**
	CY 2020	1,074	7,426	1,552	1,182	928	8,232	2,901	8,740	5,469	**37,504**
Percentage of Visits that were Observation Stays	CY 2018	0.3%	0.1%	0.2%	0.3%	0.1%	0.3%	0.2%	0.2%	0.2%	**0.2%**
	CY 2019	0.2%	0.2%	0.2%	0.3%	0.1%	0.3%	0.2%	0.2%	0.2%	**0.2%**
	CY 2020	0.2%	0.2%	0.2%	0.3%	0.1%	0.2%	0.2%	0.2%	0.3%	**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% of visits each year. ED visits, which were 3.0% of all visits in CY 2020, ranged from 1.6% of all visits (KPMAS) to 4.1% of all visits (JMS). As shown in the annual HealthChoice

evaluation, the overall percentage of the HealthChoice participants with an outpatient ED Visit decreased between CY 2015 and CY 2019 (The Hilltop Institute, 2021).

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 2018 and CY 2020. The following areas were analyzed: 1) individuals over age 65 with encounters (because this population is ineligible for HealthChoice), 2) individuals with a service date before their date of birth, 3) age-appropriate and sex-appropriate diagnoses for delivery, 4) age-appropriate dementia diagnoses, and 5) children aged 0 to 20 years with dental encounters.

Because participants older than 65 are ineligible for HealthChoice, Hilltop searched for any encounters for those aged 66 or older. Between CY 2018 and CY 2020, across all MCOs, the number of encounters submitted decreased for those who were 66 or older or who did not have a reported date of birth, although the total number of such encounters was lower in CY 2019 than in CY 2020.[15] The MCOs and the Department improved the quality of reporting encounter data for age-appropriate diagnoses in CY 2020.

The Maryland Healthy Smiles Dental Program (Healthy Smiles) provides dental coverage for children under the age of 21. The program is paid on an FFS basis not through the MCO service package. Hilltop found very few dental encounters covered by an MCO.

Hilltop analyzed the volume of participants who had a diagnosis for delivery by age group between CY 2018 and CY 2020. 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 47 in CY 2018, 64 in CY 2019, and 80 in CY 2020.[16] 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 only on encounters for female participants. All MCOs have similar distribution, with nearly 100% of all deliveries being reported for females. Delivery diagnoses for male participants in the encounter data are negligible, accounting for only 45 reported deliveries across all MCOs in CY 2020, an increase from what was reported in CY 2019 (30).[17]

The final analysis focused on age-appropriate diagnoses of dementia (see Appendix K for dementia codes) from CY 2018 to CY 2020. While dementia is a disease generally associated with older age, 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

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

the age of 30 having an encounter with dementia. While each MCO does have participants under the age of 30 with a dementia diagnosis, the numbers are relatively small (293 participants were reported across all MCOs in CY 2020).[18]

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 46.3 million overall encounters, close to 6.8 million encounters (approximately 14.7%) were rejected through the EDI process in CY 2020. The major issue driving this large increase in encounter rejections stems from problems around provider information. The Department should continue to work with the MCOs to resolve the provider data problems.

While all MCOs experienced major increases in the incidence of provider-related rejections, only ABH and CFCHP also had more non-provider-related rejections in CY 2020 than in CY 2019. While ABH's increase was relatively modest, it outpaced the rate at which its share of all HealthChoice enrollees increased, indicating that there may be areas for improvement. CFCHP's increase in rejected encounters for non-provider-related issues (from 136,676 in CY 2019 to 585,620 in CY 2020) coincided with a decrease in its share of all HealthChoice enrollees (from 4.6% in CY 2019 to 4.3% in CY 2020), indicating worsening problems with that organization's EDI processes.

The variance between an MCO's share of all rejections and its share of all accepted encounters might warrant further attention. If the share of rejections is much higher than the share of accepted encounters, that may indicate an issue particular to that MCO. If, on the other hand, the share of accepted encounters is greater than the share of rejections, the MCO may have some best practices to share. CFCHP had nearly a quarter of all rejected encounters in CY 2020 (23.1%) but only 5.7% of accepted encounters. Conversely, KPMAS' share of accepted encounters (5.3%) exceeded its share of rejections (1.8%) during the same period.

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

Hilltop analyzed and interpreted the encounter data and found that during CY 2020, the MCOs submitted a total of 39.5 million accepted encounters (records), down from 39.9 and 40.5 million in CY 2018 and CY 2019, 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. Hilltop conducted an analysis of paid information on medical encounters and found that all HealthChoice MCOs continued to submit their medical encounters with populated payment fields throughout CY 2019 and CY 2020, although two MCOs (JMS, MSFC) continued to show elevated numbers of encounters submitted with $0 pay. Hilltop further analyzed the

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

MCOs' use of the 05/09 indicator on medical encounters with $0 in the pay field. Adherence to this requirement is uneven across MCOs, and none demonstrated full compliance in CY 2020. Hilltop also analyzed the variance between the pay amounts included in accepted encounters to the approved payment amounts on the FFS fee schedule, showing that KPMAS demonstrated a high degree of variance from the fee schedule during CY 2020. The Department also resolved an MMIS2 issue, which allowed institutional pay to be captured more accurately in July 2020. This field appears to now be populated for all MCOs. To address the rise in rejected encounters, the Department should encourage MCOs to work with their providers to ensure that they are enrolled on the date of service and that they know how to check their current status.

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 2020 were submitted to the Department within one month of the end date of service, consistent with CY 2019 and CY 2018 findings. Nearly all (83.3%) pharmacy encounters were submitted within one to two days of the date of service. Only two MCOs—PPMCO and UHC—showed improvement in the submission of accepted encounters within two days of the end date of service. In CY 2020, CFCHP's proportion of accepted encounters submitted more than six months after the service date grew dramatically. KPMAS's rate of encounters processed within 1 to 2 days fell by nearly 20 percentage points. 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 eight months after the date of service—which is the maximum time allotted for an encounter to be submitted to the Department—should be flagged for improvement.

Provider Analysis

Hilltop compared the percentage of participants with a PCP visit by MCO between CY 2018 and CY 2020 and found that no category of PCP visits increased during the study period. The decline was most pronounced in the percentage of participants with a visit to their assigned PCP. 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 significant decrease in ED visits between CY 2019 and CY 2020, likely due to COVID-19 decreased utilization. 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 continued to improve the quality of reporting encounter data for age-appropriate and sex-appropriate diagnoses in CY 2020. The Department should continue to review and audit the participant-level reports that Hilltop generated for delivery, dementia, individuals over age 65, pediatric dental, and 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. The number of encounters with the date of service before the enrollee's date of birth declined dramatically between CY 2018 and CY 2020; the Department may consider this to no longer be an issue.

Conclusion

HealthChoice is a mature managed care program and, overall, analysis of the CY 2020 electronic encounter data submitted indicates that MCOs have not adapted to the changes in encounter editing logic despite having had two years' lead time to prepare for the change. In many other respects, the Department and the MCOs have continued to strengthen gains made in recent years.

The most glaring issue arising in CY 2020 is the increase in encounter rejections, largely centered on the aforementioned change in encounter editing logic. Although the Department did not use encounter data from CY 2020 for rate setting because of the COVID-19 health emergency, it should continue to work with each MCO to resolve their provider enrollment issues to allow for more accurate rate setting in the future.

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 decrease in encounters submitted within one to two days could signify a negative trend for submission timeliness. 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 six 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.

The Department resolved an MMIS2 issue, which allowed institutional pay to be captured more accurately in July 2020. This field appears to now be populated for all MCOs. For next year's analysis, Hilltop will attempt to determine the accuracy of these data by comparing the paid amount field to a benchmark amount. Hilltop will also continue to review the accuracy of paid medical encounters. The Department should continue to work with MCOs to submit complete and valid encounter data, particularly for provider and payment fields.

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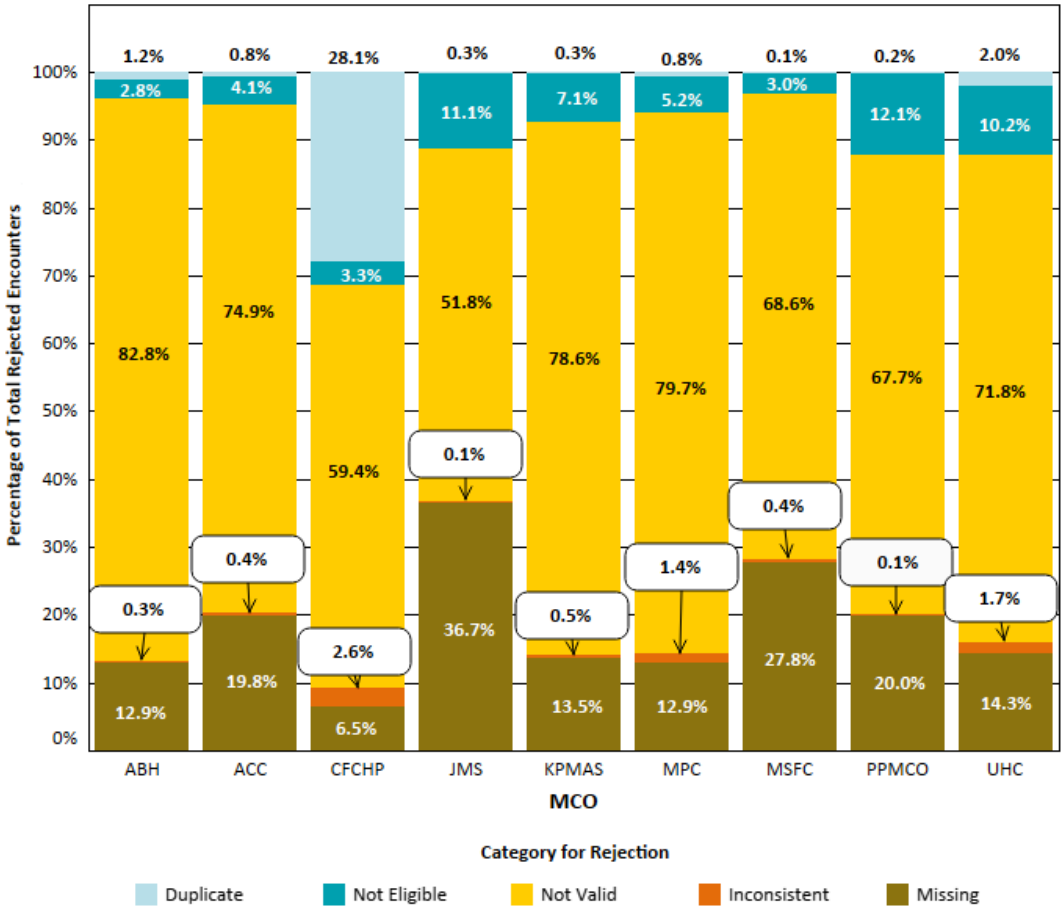
Appendices

A. Percentage of Encounters Rejected by EDI Rejection Category, by MCO, CY 2020



B. Rejection Codes, Errors, by Category with Provider-Related/Facility-Related Rejection Codes, CY 2020

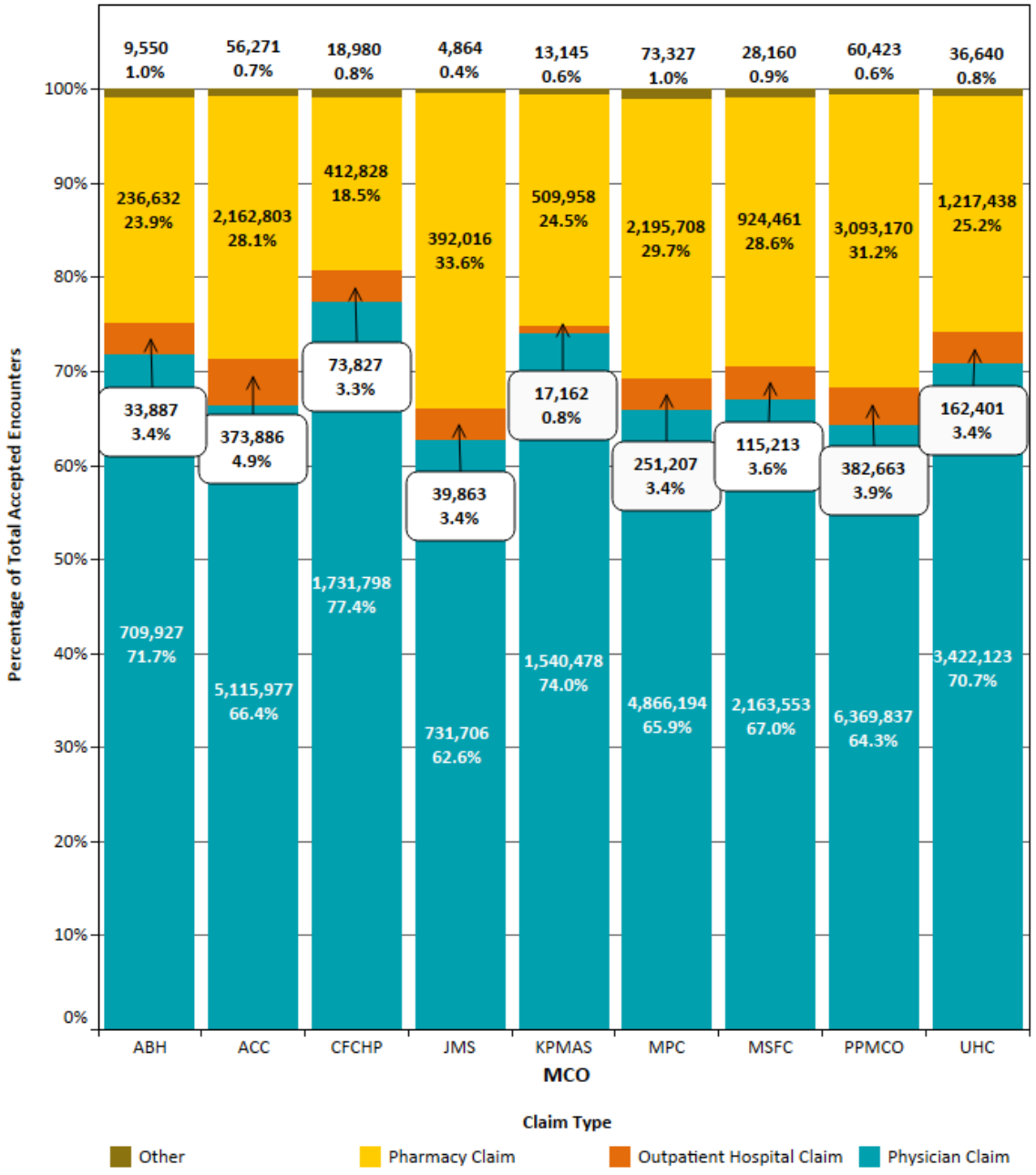
Rejection Type	Category For Rejection	
Provider-related	Missing	BILLING PROV NUM MISSING
		NPI ON ENC NOT FOUND IN MMIS
		NPI NUMBER IS MISSING
	Not Valid	PROVIDER NUMBER NOT VALID
		INVALID RENDERING PROV NUMBER
		NPI NUMBER INVLD FR PYTOPROV
		REND PROV NOT ACT ON DOS
		RENDERING PROVIDER SUSPENDED
		NPI#NFDONPROVFLFRENREFFACLTY
		PAY-TO/FAC PROV NOT ACT DOS
		PAY-TO/FAC PROVIDER SUSPENDED
		FACILITY NUMBER NOT VALID
		INVLD DEFAULT PROVIDER NUMBER
		NPI/MA# NOT MATCHED IN MMIS
		SVC/REND PROV# N/9 NUM DIGITS
		REND PROV NPI NO MATCH FFS ID
		PRO TYP RENDPROV N/ATH REP PRO

Rejection Type	Category For Rejection	
Other	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
		PAT STAT CD DISCHRG DTE CNFLT
		2ND DIAG SEX CONFLICT
		THRU DOS PRIOR TO BEGIN DOS
		ORIG ENC TP A/RES DN AGREE
		2ND DIAGNOSIS AGE CONFLICT
	Missing	NDC MISSING OR NOT VALID
		UNITS OF SERVICE EQUAL ZERO
		NDC QUANTITY MISSING
		INVLD OR MISS REV/HCPCS CODE
		INV/MISS PLACE OF SERVICE
		TOOTH SURF REQ F/PROC IS MISS
		PROC CODE REQ DIAG CODE
		TOOTH # REQD FOR PROC IS MISS
	Not Eligible	RECIP NOT ENRLD W/RPT MCO DOS
		PROC/REV CODE NOT COVD DOS
		RECPT NOT ON ELIGIBILITY FILE
		EXCEPTION 962
		EXCEPTION 964
		EXCEPTION 963
		EXCEPTION 961
	Not Valid	PROC/REV CODE NOT ON FILE
		UB92 TYPE OF BILL INVALID
		FIRST DIAGNOSIS NOT ON FILE
		2ND DIAG NOT ON FILE
		VD/RESB RECD WOUT/ORIG ICN.
		FIRST DOS NOT STRUCTURED PROP
		NDC NOT VALID STRUCTURE
		RECIP CLAIM OVERFLOW
		RECPT NUMBER NOT 11 NUM DIGITS
		CHARGE EXCEEDS EXCESS AMOUNT
		ADMIT DATE NOT STRUCTURED PROP
		CLAIM EXCEEDS 50 SERVICE LINES
		FIRST PROC NOT ON FILE
		3RD DIAG NOT ON FILE
		SECOND PROC NOT ON FILE
		4TH DIAG NOT ON FILE
		PATIENT DISCHARGE STATUS INVAL
		LAST DOS AFTER BATCH PROC DATE
		PROC BLD N/VLD F CLMTYP
		1ST SURG PROC DATE INVALID
		DENTAL CODE NOT VALID FOR DOS.

C. Top Three EDI Rejection Descriptions by Number of Rejected Encounters by MCO, CY 2020

MCO	Error Description	CY 2018	Error Description	CY 2019	Error Description	CY 2020
ABH	NPI ON ENC NOT FOUND IN MMIS	1,602	NPI ON ENC NOT FOUND IN MMIS	5,501	INVALID RENDERING PROV NUMBER	25,063
	FACILITY NUMBER NOT VALID	635	FACILITY NUMBER NOT VALID	1,563	PROVIDER NUMBER NOT VALID	18,862
	PROC/REV CODE NOT COVD DOS	474	BILLING PROV NUM MISSING	1,406	NPI NUMBER INVLD FR PYTOPROV	13,486
ACC	PROC/REV CODE NOT COVD DOS	53,585	RECIP NOT ENRLD W/RPT MCO DOS	172,573	PROVIDER NUMBER NOT VALID	296,648
	FACILITY NUMBER NOT VALID	45,880	PROC/REV CODE NOT COVD DOS	112,196	BILLING PROV NUM MISSING	201,778
	NPI ON ENC NOT FOUND IN MMIS	36,250	ORIG ICN FD ON HIST ALRD VOID	39,917	INVALID RENDERING PROV NUMBER	180,265
CFCHP	RECIP NOT ENRLD W/RPT MCO DOS	128,844	RECIP NOT ENRLD W/RPT MCO DOS	63,729	ORIG ICN FD ON HIST ALRD VOID	439,756
	VD/RESB RECD WOUT/ORIG ICN.	23,379	NPI ON ENC NOT FOUND IN MMIS	21,048	INVALID RENDERING PROV NUMBER	352,329
	NDC MISSING OR NOT VALID	22,075	PROVIDER NUMBER NOT VALID	15,354	REND PROV NOT ACT ON DOS	126,315
JMS	NPI ON ENC NOT FOUND IN MMIS	8,315	PROC/REV CODE NOT COVD DOS	6,858	BILLING PROV NUM MISSING	35,694
	PROC/REV CODE NOT COVD DOS	3,193	FIRST DOS NOT STRUCTURED PROP	4,864	NPI NUMBER INVLD FR PYTOPROV	35,244
	RECIP NOT ENRLD W/RPT MCO DOS	1,808	RECIP NOT ENRLD W/RPT MCO DOS	4,605	RECIP NOT ENRLD W/RPT MCO DOS	5,422
KPMAS	UNITS OF SERVICE EQUAL ZERO	47,825	PROVIDER NUMBER NOT VALID	12,715	PROVIDER NUMBER NOT VALID	34,533
	ORIG ICN N/FOUND ON HISTORY	45,590	BILLING PROV NUM MISSING	12,129	INVALID RENDERING PROV NUMBER	15,026
	NPI ON ENC NOT FOUND IN MMIS	8,680	NPI ON ENC NOT FOUND IN MMIS	12,028	NPI NUMBER INVLD FR PYTOPROV	14,761
MPC	NPI ON ENC NOT FOUND IN MMIS	67,738	PROC/REV CODE NOT COVD DOS	58,835	INVALID RENDERING PROV NUMBER	177,630
	PROC/REV CODE NOT COVD DOS	33,234	NPI ON ENC NOT FOUND IN MMIS	34,609	PROVIDER NUMBER NOT VALID	146,992
	RECPT NUMBER NOT 11 NUM DIGITS	22,795	NDC MISSING OR NOT VALID	19,509	BILLING PROV NUM MISSING	126,517
MSFC	UNITS OF SERVICE EQUAL ZERO	72,558	NPI ON ENC NOT FOUND IN MMIS	29,565	BILLING PROV NUM MISSING	93,903
	RECIP NOT ENRLD W/RPT MCO DOS	46,084	NDC MISSING OR NOT VALID	22,930	PROVIDER NUMBER NOT VALID	79,936
	NPI ON ENC NOT FOUND IN MMIS	45,064	BILLING PROV NUM MISSING	15,595	NPI NUMBER INVLD FR PYTOPROV	73,427
PPMCO	RECIP NOT ENRLD W/RPT MCO DOS	128,504	RECIP NOT ENRLD W/RPT MCO DOS	159,725	PROVIDER NUMBER NOT VALID	259,111
	NPI ON ENC NOT FOUND IN MMIS	75,227	NDC MISSING OR NOT VALID	87,773	BILLING PROV NUM MISSING	243,694
	NDC MISSING OR NOT VALID	62,802	PROC/REV CODE NOT COVD DOS	73,803	NPI NUMBER INVLD FR PYTOPROV	185,075
UHC	RECIP NOT ENRLD W/RPT MCO DOS	87,729	NPI ON ENC NOT FOUND IN MMIS	68,624	PROVIDER NUMBER NOT VALID	176,208
	NPI ON ENC NOT FOUND IN MMIS	60,397	RECIP NOT ENRLD W/RPT MCO DOS	67,836	INVALID RENDERING PROV NUMBER	143,864
	NDC MISSING OR NOT VALID	35,150	PROVIDER NUMBER NOT VALID	51,013	BILLING PROV NUM MISSING	106,311

D. Number and Percentage of Encounters by Claim Type and MCO, CY 2020

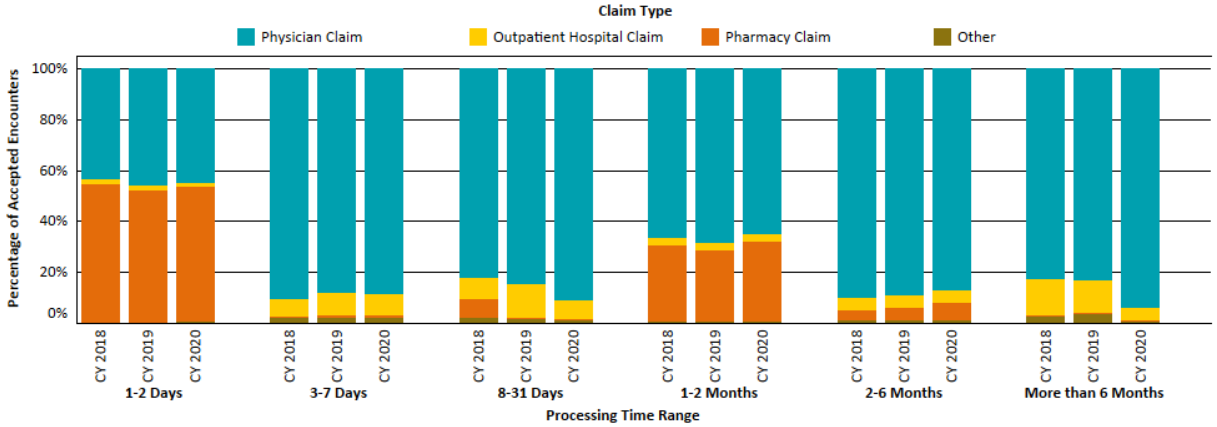


Note: "Other" is a combination of inpatient hospital claims, community-based services claims, and long-term care claims.

E. Number of Accepted Medical Encounters by MCO and Pay Category, CY 2020

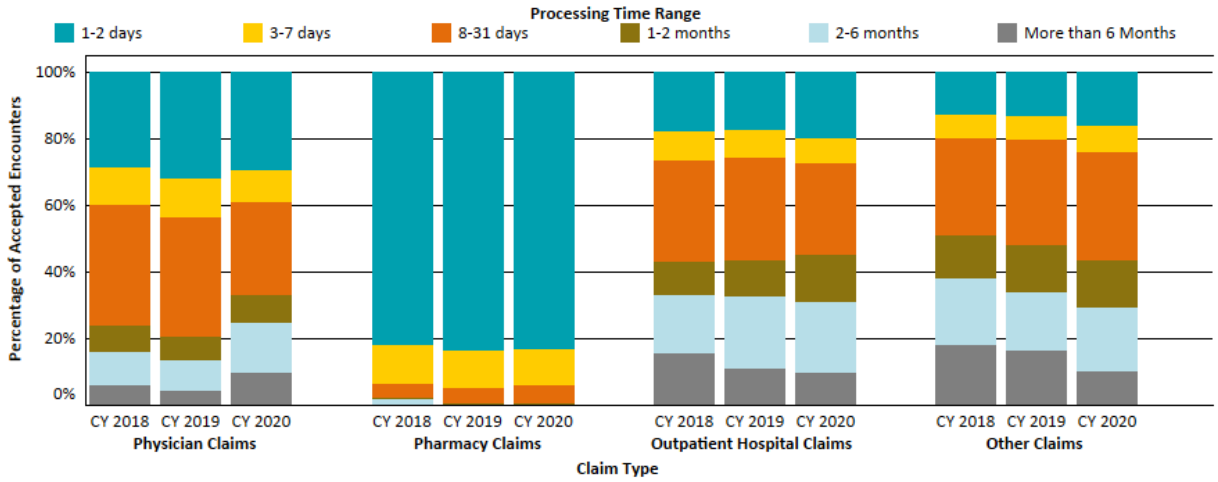
MCO	Populated			$0			Missing Pay		
	CY 2018	CY 2019	CY 2020	CY 2018	CY 2019	CY 2020	CY 2018	CY 2019	CY 2020
ABH	79,091	339,550	427,437	44,894	87,926	98,213	18,335	0	0
ACC	2,165,612	4,378,907	3,813,960	555,194	940,506	374,433	2,428,759	0	0
CFCHP	396,252	811,203	680,020	107,484	167,333	114,605	460,102	0	0
JMS	161,564	237,676	209,224	392,478	446,829	405,416	113,353	0	0
KPMAS	599,547	1,351,204	1,332,909	27,526	53,086	47,118	664,331	0	0
MPC	2,133,862	4,068,056	3,384,552	447,464	715,318	691,817	2,225,278	0	0
MSFC	604,381	1,083,334	936,837	514,780	935,022	904,435	863,140	0	0
PPMCO	2,774,218	5,385,156	4,381,528	835,213	1,268,342	970,711	3,058,433	0	0
UHC	1,241,991	2,442,476	2,132,482	436,220	673,823	585,247	1,461,742	0	0
Total	**10,156,518**	**20,097,562**	**17,298,949**	**3,361,253**	**5,288,185**	**4,191,995**	**11,293,473**	**0**	**0**

F. Distribution of Accepted Encounters, by Processing Time and Claim Type, CY 2018 to CY 2020



Processing Time Range	CY 2018				CY 2019				CY 2020			
	Physician Claim	Pharmacy Claim	Outpatient Hospital Claim	Other	Physician Claim	Pharmacy Claim	Outpatient Hospital Claim	Other	Physician Claim	Pharmacy Claim	Outpatient Hospital Claim	Other
1-2 days	43.7%	54.4%	1.7%	0.2%	46.2%	52.0%	1.6%	0.2%	44.9%	53.2%	1.7%	0.3%
	7,572,249	9,441,541	287,972	41,762	8,629,551	9,710,338	298,284	41,890	7,829,006	9,284,451	290,059	49,060
1-2 months	90.7%	0.5%	7.0%	1.8%	88.3%	1.0%	8.6%	2.1%	88.6%	1.0%	8.6%	1.8%
	2,067,369	12,188	158,648	41,079	1,909,679	22,195	185,498	45,567	2,163,246	25,139	210,294	42,989
2-6 months	82.1%	7.4%	8.5%	2.0%	85.0%	0.2%	12.9%	1.9%	91.4%	0.2%	7.1%	1.3%
	2,661,452	240,199	274,734	63,817	2,443,567	5,928	369,648	55,403	3,979,681	8,798	307,591	57,561
3-7 days	66.6%	29.8%	3.1%	0.5%	68.4%	28.0%	3.1%	0.5%	65.2%	31.4%	2.8%	0.6%
	3,032,872	1,358,174	140,852	22,228	3,158,232	1,293,712	141,371	22,679	2,557,495	1,229,931	111,235	23,348
8-31 days	90.4%	4.2%	4.6%	0.9%	89.1%	5.0%	4.9%	0.9%	87.4%	6.9%	4.6%	1.1%
	9,635,210	445,107	486,022	93,223	9,601,859	540,740	529,585	100,772	7,530,801	596,126	394,196	97,894
More than 6 Months	83.1%	0.0%	13.8%	3.2%	83.1%	0.1%	13.2%	3.7%	93.9%	0.0%	5.0%	1.1%
	1,505,530	301	249,388	57,409	1,151,151	740	182,520	51,134	2,591,238	569	136,730	30,503
Total	**66.4%**	**28.8%**	**4.0%**	**0.8%**	**66.4%**	**28.6%**	**4.2%**	**0.8%**	**67.4%**	**28.2%**	**3.7%**	**0.8%**
	26,474,682	**11,497,510**	**1,597,616**	**319,518**	**26,894,039**	**11,573,653**	**1,706,906**	**317,445**	**26,651,467**	**11,145,014**	**1,450,105**	**301,355**

G. Percentage of the Total Number of Encounters Submitted, by Claim Type and Processing Time, CY 2018–CY 2020

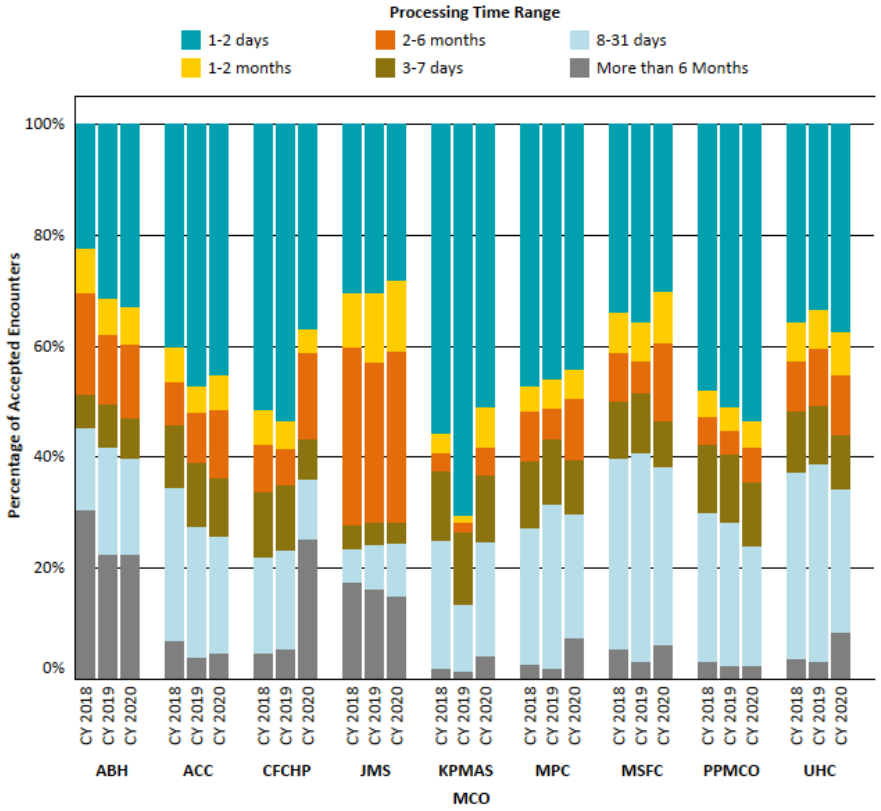


Processing Time Range	Physician Claim			Pharmacy Claim			Outpatient Hospital Claim			Other		
	CY 2018	CY 2019	CY 2020	CY 2018	CY 2019	CY 2020	CY 2018	CY 2019	CY 2020	CY 2018	CY 2019	CY 2020
1-2 days	28.60%	32.09%	29.38%	82.12%	83.90%	83.31%	18.03%	17.48%	20.00%	13.07%	13.20%	16.28%
	7,572,249	8,629,551	7,829,006	9,441,541	9,710,338	9,284,451	287,972	298,284	290,059	41,762	41,890	49,060
3-7 days	11.46%	11.74%	9.60%	11.81%	11.18%	11.04%	8.82%	8.28%	7.67%	6.96%	7.14%	7.75%
	3,032,872	3,158,232	2,557,495	1,358,174	1,293,712	1,229,931	140,852	141,371	111,235	22,228	22,679	23,348
8-31 days	36.39%	35.70%	28.26%	3.87%	4.67%	5.35%	30.42%	31.03%	27.18%	29.18%	31.74%	32.48%
	9,635,210	9,601,859	7,530,801	445,107	540,740	596,126	486,022	529,585	394,196	93,223	100,772	97,894
1-2 months	7.81%	7.10%	8.12%	0.11%	0.19%	0.23%	9.93%	10.87%	14.50%	12.86%	14.35%	14.27%
	2,067,369	1,909,679	2,163,246	12,188	22,195	25,139	158,648	185,498	210,294	41,079	45,567	42,989
2-6 months	10.05%	9.09%	14.93%	2.09%	0.05%	0.08%	17.20%	21.66%	21.21%	19.97%	17.45%	19.10%
	2,661,452	2,443,567	3,979,681	240,199	5,928	8,798	274,734	369,648	307,591	63,817	55,403	57,561
More than 6 Months	5.69%	4.28%	9.72%	0.00%	0.01%	0.01%	15.61%	10.69%	9.43%	17.97%	16.11%	10.12%
	1,505,530	1,151,151	2,591,238	301	740	569	249,388	182,520	136,730	57,409	51,134	30,503
Total	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**
	26,474,682	**26,894,039**	**26,651,467**	**11,497,510**	**11,573,653**	**11,145,014**	**1,597,616**	**1,706,906**	**1,450,105**	**319,518**	**317,445**	**301,355**

H. Distribution of Accepted Encounters Submitted, by MCO and Processing Time, CY 2020

Processing Time Range	ABH	ACC	CFCHP	JMS	KPMAS	MPC	MSFC	PPMCO	UHC	Total
1-2 days	33.17%	45.37%	37.07%	28.29%	51.11%	44.42%	30.45%	53.65%	37.68%	**44.13%**
	328,423	3,497,458	829,461	330,544	1,063,377	3,281,327	983,813	5,314,839	1,823,334	**17,452,576**
3-7 days	7.05%	10.29%	7.13%	3.72%	12.12%	9.98%	8.15%	11.45%	9.69%	**9.92%**
	69,746	793,249	159,560	43,506	252,086	737,024	263,382	1,134,590	468,866	**3,922,009**
8-31 days	17.37%	21.04%	10.93%	9.42%	20.50%	22.09%	31.98%	21.45%	25.91%	**21.79%**
	171,913	1,622,074	244,534	110,103	426,600	1,631,963	1,033,291	2,124,720	1,253,819	**8,619,017**
1-2 months	6.76%	6.18%	4.31%	12.74%	7.22%	5.10%	9.17%	4.65%	7.63%	**6.17%**
	66,935	476,151	96,506	148,851	150,301	376,534	296,344	460,876	369,170	**2,441,668**
2-6 months	13.31%	12.49%	15.61%	31.03%	5.05%	11.04%	14.12%	6.48%	10.92%	**11.01%**
	131,737	963,102	349,244	362,559	105,173	815,417	456,328	641,740	528,331	**4,353,631**
6-7 months	3.31%	0.88%	3.91%	3.73%	0.72%	1.29%	1.95%	0.61%	1.51%	**1.36%**
	32,758	67,924	87,506	43,582	15,010	95,352	63,110	60,322	73,010	**538,574**
7-12 months	11.31%	2.80%	19.78%	4.97%	2.87%	4.29%	2.74%	1.21%	4.51%	**4.12%**
	111,923	215,602	442,508	58,083	59,739	316,829	88,636	119,489	218,175	**1,630,984**
More than 1 Year	7.73%	0.95%	1.26%	6.10%	0.41%	1.79%	1.44%	0.50%	2.15%	**1.49%**
	76,561	73,377	28,114	71,221	8,457	131,867	46,473	49,515	103,897	**589,482**
Total	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**
	989,996	**7,708,937**	**2,237,433**	**1,168,449**	**2,080,743**	**7,386,313**	**3,231,377**	**9,906,091**	**4,838,602**	**39,547,941**

I. Percentage of Accepted Encounters Submitted, by MCO and Processing Time, CY 2018–CY 2020



MCO	Year	1-2 days	3-7 days	8-31 days	1-2 months	2-6 months	More than 6 Months
ABH	CY 2018	22.7%	5.9%	15.0%	7.9%	18.5%	30.2%
	CY 2019	31.6%	7.7%	19.3%	6.4%	12.6%	22.4%
	CY 2020	33.2%	7.0%	17.4%	6.8%	13.3%	22.3%
ACC	CY 2018	40.4%	11.3%	27.4%	6.1%	7.9%	6.9%
	CY 2019	47.3%	11.5%	23.5%	4.9%	9.1%	3.8%
	CY 2020	45.4%	10.3%	21.0%	6.2%	12.5%	4.6%
CFCHP	CY 2018	51.6%	11.8%	17.3%	6.4%	8.5%	4.4%
	CY 2019	53.6%	11.6%	18.0%	4.9%	6.7%	5.1%
	CY 2020	37.1%	7.1%	10.9%	4.3%	15.6%	24.9%
JMS	CY 2018	30.7%	4.4%	6.0%	9.7%	32.0%	17.3%
	CY 2019	30.6%	4.0%	8.1%	12.6%	28.7%	16.0%
	CY 2020	28.3%	3.7%	9.4%	12.7%	31.0%	14.8%
KPMAS	CY 2018	55.8%	12.6%	22.9%	3.7%	3.2%	1.8%
	CY 2019	70.7%	13.0%	12.1%	1.2%	1.7%	1.3%
	CY 2020	51.1%	12.1%	20.5%	7.2%	5.1%	4.0%
MPC	CY 2018	47.3%	12.0%	24.4%	4.7%	9.1%	2.6%
	CY 2019	46.2%	11.9%	29.6%	5.3%	5.3%	1.6%
	CY 2020	44.4%	10.0%	22.1%	5.1%	11.0%	7.4%
MSFC	CY 2018	34.1%	10.2%	34.4%	7.3%	8.9%	5.2%
	CY 2019	35.8%	10.6%	37.7%	7.1%	5.8%	2.9%
	CY 2020	30.4%	8.2%	32.0%	9.2%	14.1%	6.1%
PPMCO	CY 2018	48.2%	12.3%	26.8%	4.7%	5.0%	3.0%
	CY 2019	51.2%	12.3%	25.7%	4.3%	4.1%	2.4%
	CY 2020	53.7%	11.5%	21.4%	4.7%	6.5%	2.3%
UHC	CY 2018	35.7%	11.1%	33.7%	7.1%	8.9%	3.5%
	CY 2019	33.7%	10.7%	35.6%	7.0%	10.1%	2.9%
	CY 2020	37.7%	9.7%	25.9%	7.6%	10.9%	8.2%

J. Delivery Codes

Delivery services were identified as any encounter that had one of the ICD-10 diagnosis codes listed in the table below during CY 2018 through CY 2020. In CY 2020, Hilltop's definition for delivery included an additional ICD-10 diagnosis code, O60.1x, and these codes, O64.x, O65.x, O66.x, and O69.x, were expanded to include all possible sub-codes whereas in previous analyses, only certain sub-codes were used. The CY 2018 and CY 2019 analysis should not be compared to what was reported in CY 2020.

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

*Only the three-character code listed in the table (e.g., 076 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) or no additional digits (e.g., O61).

K. Dementia Codes

Dementia-related services in CY 2020 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 2020, Hilltop's definition for dementia no longer included ICD-10 diagnosis code F00, and the CY 2018 and CY 2019 analysis should not be compared to what was reported in CY 2020.

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

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