

MAC Binder Section 6 – Audits

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Located online at <http://chfs.ky.gov/dms/mac.htm>

1 – KY Encounter Data Validation Study FINAL_Sept2016:

The drive to improve healthcare quality efforts through accurate data capture has led to concerted efforts on the federal and state level to improve encounter data reporting. The Centers for Medicare and Medicaid Services (CMS) requires fee-for-service (FFS) and encounter data reporting through the Medicaid Statistical Information System (MSIS).

2 – KY Encounter Data Validation – Dental Services FINAL_Sept2016:

Early and Periodic Screening, Diagnostic and Treatment (EPSDT) services is a federally mandated health program for Medicaid enrollees, which provides comprehensive and preventive health care services for children and adolescents up to age 21 years.



Commonwealth of Kentucky
Department for Medicaid Services
Division of Program Quality and Outcomes

Encounter Data Validation Study

Final Report

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Background and Introduction

The drive to improve healthcare quality efforts through accurate data capture has led to concerted efforts on the federal and state level to improve encounter data reporting. The Centers for Medicare and Medicaid Services (CMS) requires fee-for-service (FFS) and encounter data reporting through the Medicaid Statistical Information System (MSIS). However, Medicaid encounter data can be incomplete, and late submissions can lead to underreported figures that are subsequently used for state decisions. Regular and ongoing encounter data validations can assess incorrectly captured or missing information as well as sudden changes in membership or services rendered. Accurate data capture can help ensure that valid information is used in future data collaboration projects, set capitation rates and Managed Care Organization (MCO) performance benchmarks and conduct provider assessments.

MCOs in Kentucky are obligated to submit encounter data as per Section 16.1 of their contract with the state. The MCO contract summarizes the Department for Medicaid Services (DMS) policy for submissions, adjustments and checks of encounter data. Additionally, the usage of the collected data is discussed. Appendix F of the stated MCO contract lists a summary of the encounter data process and usage by the state.

As stated in MCO contracts (Appendix F), MCOs must submit, at minimum, all adjudicated (paid or denied), corrected and adjusted encounter data on a weekly basis for the previous month. Encounters must be submitted via HIPAA 837 and National Council for Prescription Drug Programs (NCPDP) standard transaction files for professional, dental and pharmacy claims as well as enrollment and eligibility data. Appropriate codes and provider information must be submitted with the records.

Appendix F in MCO contracts lists data quality standards for the submitted files. Enrollee information such as name, ID, and DOB and provider NPI and location are emphasized. If errors exceed or equal 5% of the total submission, the entire submission is returned to the MCO for corrections and must be resubmitted within 30 days of receipt. If the error threshold is below 5%, records are processed by DMS for inclusion into the MIS system. MCO claims with errors and also a status of "denied" are not included in the error threshold calculation, and may be included in the MIS system. MCOs have 30 days to address claims returned for correction and must resubmit upon resolution. Penalties for lateness or unwillingness to comply are given by DMS, and MCOs have the right to dispute appropriateness of penalty assessments prior to their enactments.

As per Appendix F of the MCO contract, an annual validity study is conducted by DMS to assess the soundness and accuracy of encounter data submissions. For the Kentucky encounter data validation study proposal, Island Peer Review Organization (IPRO) suggested a validation of all MCO pharmacy, dental, and medical encounter data against DMS's captured encounter data for a specified time period to assess if information was lacking on the state level, and if timeliness of claim capture could impact accurate reporting of data. The five organizations involved in the Kentucky study were Anthem BCBS Medicaid, Humana-CareSource, CoventryCares, Passport Health Plan and Wellcare of KY. The purpose of the study is to assess if DMS is missing information from MCOs due to claim lags or adjustments, and if there are additional data edit checks DMS could implement going forward.

Methodology

As medical encounter claims include a variety of billing information and service codes, IPRO restricted data file specifications to a few specific fields: member ID, dates of service, adjudication and admission, International Classification of Diseases, version 9 (ICD-9) diagnosis, and procedure codes (limited to the first four codes reported on the claim line detail), Current Procedural Terminology (CPT®), place of service, provider name and national provider identifier (NPI), payment amounts, revenue, and diagnosis-related group (DRG) codes. Since this data was captured prior to the ICD-10 implementation date, IPRO restricted the data to ICD-9 diagnosis and procedure codes.

Dental claim file layouts were similar to the medical file layouts except for admission dates, diagnosis, ICD-9 procedure codes, and DRG and revenue codes. These fields are not pertinent to dental services. Current Dental Terminology (CDT) codes were captured in the procedure code field and servicing provider information (NPI, Name and ID) were populated in the appropriate provider fields.

For Pharmacy claims, the file specifications included member ID, dates of drug dispense and claim adjudication, National Drug Codes (NDC), quantity of drug dispensed, days of supply, payment amounts, prescribing provider names and NPI.

Specifications were shared with MCOs, and they were required to provide all medical, dental and pharmacy data for adjudication dates between July 1, 2015 and September 30, 2015. MCOs submitted separate files for each encounter type in February 2016. Files were reviewed against file layout specifications. Questions and concerns regarding the files were sent to each respective MCO to address any issues found, and resubmitted files were reviewed to ensure the issues were resolved.

Updated MCO final files were then standardized and aggregated into one medical, one pharmacy and one dental file to compare against the state's data extracts for each claim type. Using Statistical Analysis System (SAS) software, frequencies and graphs were generated based on records submitted, members and providers captured, dates of service, dates of adjudication, and dates of state submission. SAS was also used to conduct table merges between the MCO aggregated file and the state data warehouse file to find all possible matches.

IPRO did not require DMS to submit file extracts for the requested time period. IPRO receives monthly data extracts from DMS for dental, pharmacy and medical claims and appends these monthly extracts to their respective DMS claims tables housed on IPRO's servers. On the 5th of every month, IPRO receives batch files for member encounter data, enrollment and demographic data as well as provider tables. These data are received and validated and reports regarding trends or changes in enrollment are submitted to DMS via File Transfer Protocol (FTP).

In March 2016, IPRO used the aggregated data extracts (for extracts received up to March 2016) for Dental and Medical claims to compare Member IDs, dates of service and codes. All pharmacy claims for adjudication dates July 1, 2015 to September 30, 2015 were used to compare against the MCO data, as adjudication dates were captured in DMS data.

MCO files were aggregated by claim type to run comparisons against DMS data. Upon further review, IPRO noticed that the state does not collect complete information on adjudication dates for medical and dental data. To correct for this, IPRO ran a separate query filtering DMS medical and dental data (dates of service between July 1, 2015 to September 30, 2015, and dates of DMS submissions from July 1, 2015 to October 31, 2015) in order to run frequencies comparing record counts and dates of service and adjudication. MCO medical and dental data were filtered to dates of service between July 1, 2015 to September 30, 2015 for easier comparison against the DMS data for date frequencies and record counts.

DMS pharmacy claims were filtered on adjudication dates between July 1, 2015 and September 30, 2015. MCO pharmacy data was not filtered further for comparison to the DMS data since DMS captures adjudication dates for all pharmacy claims.

IPRO sought to determine discrepant records for Medical encounter data, i.e., if the MCO records did not match DMS records on Member ID, date of service, primary diagnosis and/or CPT code, as well as ICD-9 procedure codes, DRG and

REV codes. If records did not match to DMS data on *any* code for that date of service, the claim was considered a discrepant record. Matches to the DMS data may be partial or full matching.

For Dental claims, comparisons were made on member ID, provider ID and CDT codes which were stored in the procedure code field. If no comparisons were possible for ID, date of service and procedure code, the MCO record was deemed discrepant.

For pharmacy claims, comparisons were made on Member ID, date of drug dispense, and NDC codes. Similarly to the dental analysis, if no matches were made on member ID, date of drug dispense, and NDC code, the record was deemed discrepant.

All discrepant records for the three claim types were compiled and submitted to the MCOs for review. IPRO requested the MCOs review 100 random records (at minimum) for each claim type to assess if claims were submitted to DMS, or if they were rejected for corrections and are pending submission. MCOs responded to IPRO regarding their discrepant claims using the four drop-down options listed in the MCO response field for the spreadsheets provided. Researched claims were required to be bucketed under four categories: "Claim was not submitted," "Claim was submitted but rejected," "Claim was successfully submitted," or "Other." Comments were requested to further explain the reason selected. Additionally, some but not all MCOs provided dates of original submission for the sampled discrepant claims.

IPRO reviewed the submitted responses on the claim type discrepancy report, and clarified questions through email correspondence with some of the MCOs. The "successfully submitted claims" were compared against DMS data extracts to find any claim matches, in case the discrepant claims were submitted after the date of claim study.

Findings

Pharmacy

Comparison of Pharmacy Records between DMS and MCOs

Prior to matching data between MCO and DMS data extracts, date and record frequencies were run on both the MCO-submitted and DMS data.

Table 1A shows each MCO's pharmacy claim volume as a percentage of the Kentucky DMS pharmacy data extract for the requested adjudication period. Anthem BCBS Medicaid had 8.51% of DMS claim volume, the smallest percentage of pharmacy claims adjudicated from July 1, 2015 to September 30, 2015. Humana-CareSource and CoventryCares had similar claim volume percentages with Humana-CareSource at 14.29% and CoventryCares at 16.37%; Passport Health Plan was the fourth largest claim volume percentage of DMS data with 26.77%. Wellcare of KY, the largest of the five MCOs, had 34.05% of the DMS pharmacy data extract for the requested time period.

Although **Table 1A** showed that original pharmacy prescription dates extended as far back as 2008 for some claims, the minimum dispense dates for some claims went as far back as 2013. As these claims have undergone adjustments or payment reversals since their original dispense dates, they fell into the submitted data for the adjudication period. Minimum Kentucky processing dates indicate that MCOs are submitting their claims at least between 5 to 17 days after adjudication. The data presented in this table was pulled in March 2016. Maximum DMS processing dates indicate that adjudicated claims are still being submitted more than 90 days after adjudication.

Data errors found in the DMS pharmacy data extracts (**Table 1A**):

- Dates of prescription exceeded the adjudication date on the claim.
- For some records, the prescription and dispense dates exceeded the date of claim adjudication by one day.
- Dispense and prescription dates were listed for future dates, although adjudication dates were listed for the requested time period.
- Some records show that the claims were adjudicated prior to the drug dispense date.

Table 1A: Kentucky Data Warehouse Pharmacy Data Date Frequency for Adjudication Dates July 1, 2015 - September 30, 2015

MCO	Records* (column %)	Minimum Dispense Date Captured for all claims	Maximum Dispense Date Captured for all claims	Minimum Prescription Date for all claims	Maximum Prescription Date for all claims	Minimum MCO Adjudication Date for all claims	Maximum Adjudication Date for all claims	Minimum Kentucky Processing Date for all claims	Maximum Kentucky Processing Date for all claims
Anthem BCBS Medicaid	556,250 (8.51%)	05/02/2014	09/21/2015	11/14/2012	2/28/2026 ¹	07/05/2015	09/27/2015	07/10/2015	01/01/2016
CoventryCares	1,070,274 (16.37%)	03/04/2014	09/25/2015	09/27/2013	09/25/2015	07/05/2015	09/27/2015	07/10/2015	01/29/2016
Humana-CareSource	934,410 (14.29%)	08/06/2013	10/1/2015 ²	08/06/2013	10/1/2015 ²	07/01/2015	09/30/2015	07/17/2015	02/26/2016
Passport Health Plan	1,749,677 (26.77%)	07/15/2013	1/1/2020 ³	07/07/2010	2/15/2022 ³	07/07/2015	09/29/2015	07/24/2015	02/26/2016
Wellcare of KY	2,225,619 (34.05%)	01/28/2013	09/24/2015	10/30/2008	09/24/2015	07/02/2015	09/24/2015	07/17/2015	02/26/2016
Total	6,536,230								

* Data extracted on 03/16/2016.

¹ In Kentucky DMS Data, Anthem BCBS Medicaid has two records where date of prescription exceeds the date of adjudication. One record has a prescribe date of 11/16/2015 and the other record has a prescribe date of 02/28/2026.

² In Kentucky DMS Data, Humana-CareSource has 76 records where the dispense date and date of prescription are 10/01/2015 and date paid is 09/30/2015.

³ In Kentucky DMS Data, Passport Health Plan has one record with dispense date 01/01/2020 and date paid 09/01/2015.

Table 1B shows the volume and proportion of each MCO’s pharmacy submissions to the aggregated submission total and their respective minimum and maximum date values. Anthem BCBS Medicaid, as was the case for the DMS data extract, had the smallest submission percentage at 4.86% of the total; record volumes for the adjudication time period were nearly half of what was captured in Table 1A (8.51%). CoventryCares had a smaller proportion of the total MCO-submitted claims than the proportion captured in the DMS extract data (13.19% versus DMS data, 16.37%). Humana-CareSource and Passport Health Plan, similar to its DMS proportions, had 15.34% and 23.11% of the total submitted claims, respectively. Wellcare of KY had a larger proportion of the MCO-submitted data than in the DMS data extracts at 43.50%.

Both Anthem BCBS Medicaid and CoventryCares, who use ESI as the pharmacy vendor, had shown that dispense dates were limited to the requested adjudication period and that the adjudication/payment dates were outside of the requested time period. When CoventryCares was contacted about this issue, they provided a response from an email to their pharmacy vendor indicating that they pulled all “paid adjudicated claims, corrected claims and adjusted claims when the claim was successfully adjudicated/filled on [ESI’s] system” (Email correspondence with CoventryCares, 2/25/2016).

Humana-CareSource, Passport Health Plan and Wellcare of KY showed that pharmacy dispense dates went far back as 2013, and since the adjudication dates listed on the claims were in 2015, it indicates that there are continuing adjustments being made to pharmacy claims (reversals, payment adjustments, or voids).

Data errors found in the MCO pharmacy data extracts (**Table 1B**):

- Adjudication dates were listed outside of the requested time period for Anthem BCBS Medicaid and CoventryCares, but “ESI understood ‘paid adjudicated claims, corrected claims and adjusted claims’ when the claim was successfully adjudicated/filled on [ESI’s] system” as stated in an email from ESI (Email correspondence with CoventryCares, 2/25/2016).
- Dates of drug dispense exceeded the adjudication date on the claim for some records.
- The prescription and dispense dates exceeded the date of claim adjudication by one day for some records.

Table 1B: MCO Pharmacy Data Date Frequency for Adjudication Dates July 1, 2015 - September 30, 2015

MCO	Records* (column %)	Minimum Dispense Date Captured	Maximum Dispense Date Captured	Minimum Date Paid	Maximum Date Paid
Anthem BCBS Medicaid ¹	271,184 (4.86%)	07/01/2015	09/30/2015	07/01/2015	12/23/2015 ²
CoventryCares ¹	735,373 (13.19%)	07/01/2015	09/30/2015	01/01/1800 ^{*,1}	12/24/2015 ²
Humana-CareSource	855,036 (15.34%)	05/15/2013	10/1/2015 ³	07/01/2015	09/30/2015
Passport Health Plan	1,288,481 (23.11%)	09/16/2013	09/29/2015	07/01/2015	09/30/2015
Wellcare of KY	2,424,844 (43.50%)	05/27/2014	10/1/2015 ⁴	07/01/2015	09/30/2015
Total	5,574,918				

* 2,531 records had Date Paid '01/01/1800'; ESI explained "The claims with the 1800/01/01 did successfully adjudicate and ESI sent a "PAID" status back to the dispensing pharmacy however, at the time of the report generation, the claims has not cleared ESI internal processes for claim finalization and invoicing of the claims to the MCO" (CoventryCares Email dated 02/25/2016).

¹ Pharmacy vendor ESI conducted the data pull of Pharmacy claims; IPRO questioned one MCO who utilized ESI as to why dispense dates were limited to the study period but not the Date Adjudicated Field: "The request that ESI received was the following.. "They need claims (all paid adjudicated claims, corrected claims and adjusted claims) universe for RX, Medical, and Dental from the time period of 7/1/15-9/30/15. They need the claims "directly from your processing system"... ESI understood "paid adjudicated claims, corrected claims and adjusted claims" when the claim was successfully adjudicated/filled on our system. This correlates to the direction given in the attached document "This would be the date which the pharmacy adjudicated the claim and recognized a paid claim status in their system" (CoventryCares Email dated 02/25/2016).

² Anthem BCBS Medicaid had 765 records with payment dates outside of the study period and CoventryCares had 3,846 records with payment dates outside of the study period.

³ In Humana-CareSource's MCO-submitted data, about 90 records have dispense dates of 10/01/2015 (past the adjudication date of 09/30/2015)

⁴ In Wellcare of KY's MCO-submitted data, about 170 records have dispense dates of 10/01/2015 (past the adjudication date of 09/30/2015).

Pharmacy Claim Volume Analysis

Figures 1 A, B, C, D, and E display the claim volume per date of drug dispense for July 1, 2015 to September 30, 2015. All five figures show that frequency and pattern of MCO-submitted claim volume correspond with DMS data extracts claim volume. Humana-CareSource and Wellcare of KY had nearly similar volumes between MCO and DMS data. This corresponds with **Tables 1A and 1B**, as volume of records are nearly the same. For Anthem BCBS Medicaid, CoventryCares and Passport Health Plan, MCO data appears to be underreporting what DMS data extracts show. Although claim volume totals are not near matches per drug dispense date, the frequency and pattern do match between the two data sources for each MCO.

Based on the DMS data extracts, the state does not capture the original claim number the MCOs have for the record, but rather has a state-assigned claim number. Claims are submitted to the state multiple times during the three month adjudication period; each time the same claim undergoes a payment adjustment or is voided and resubmitted to the state, the state does not reassign the original state-imposed claim number to the record, but rather gives the record a new claim number. This is a possible reason as to why DMS claim volumes are 1.5 times greater than the MCO data per drug dispense date, and why claim volume totals may be more exaggerated in DMS data than in the MCO data.

As a suggestion to DMS, it may be beneficial to capture original MCO claim numbers to help track claims information to MCOs and to assist in future encounter data validation (EDV) studies through external quality review organizations (EQROs).

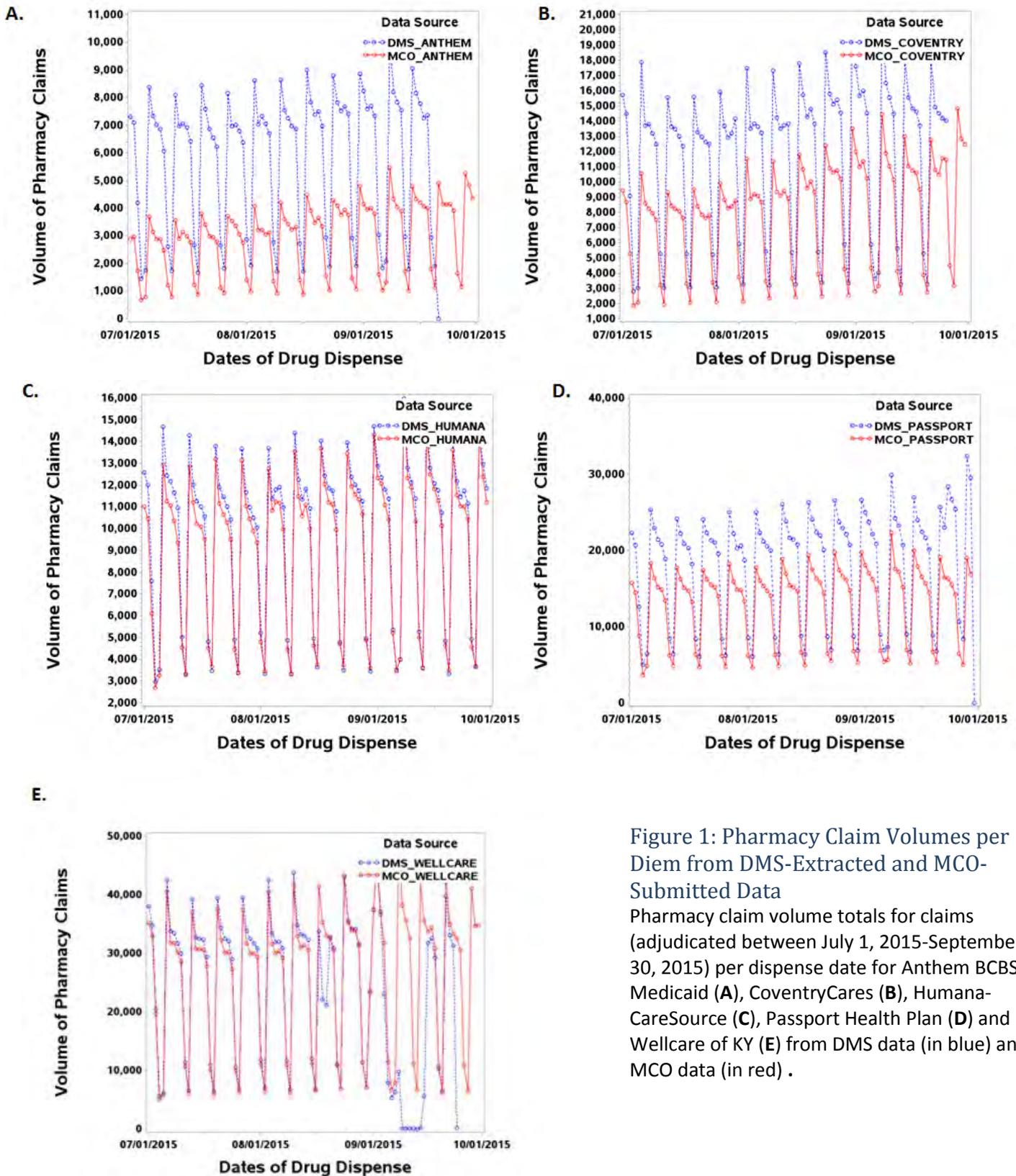


Figure 1: Pharmacy Claim Volumes per Diem from DMS-Extracted and MCO-Submitted Data
 Pharmacy claim volume totals for claims (adjudicated between July 1, 2015-September 30, 2015) per dispense date for Anthem BCBS Medicaid (A), CoventryCares (B), Humana-CareSource (C), Passport Health Plan (D) and Wellcare of KY (E) from DMS data (in blue) and MCO data (in red) .

Pharmacy Lagging Claims Analysis

Table 1C is an analysis of DMS data for the requested adjudication period (filtered to drug dispense dates for the same period), showcasing lags in claims submission to DMS.

CoventryCares had the timeliest submissions of claims to DMS with 99.72% of records being submitted within a 30-day period after the claim adjudication. CoventryCares was followed by Humana-CareSource, who had 98.60% of records submitted within 30 days after adjudication and Anthem BCBS Medicaid, who had 98.33%. Passport Health Plan had 96.22% of its records submitted within 30 days. Wellcare of KY had the least timely submissions with only 63.01% of its records submitted within the 30-day period. None of the MCOs had data submitted past one year of adjudication.

Table 1C: Pharmacy Lagging Claims Analysis for DMS-Captured Data (Dispense Dates and Adjudication Dates from July 1, 2015 to September 30, 2015)

	Total DMS Data*	Anthem BCBS Medicaid	CoventryCares	Humana-CareSource	Passport Health Plan	Wellcare of KY
	Count (row %)	Count (row %)	Count (row %)	Count (row %)	Count (row %)	Count (row %)
Adjudicated Claims Submission to DMS	n=6,242,394	n=496,251	n=1,029,699	n=928,437	n=1,736,352	n=2,051,655
Claims submitted to DMS within 30 days of adjudication	5,393,827 (86.41%)	487,977 (98.33%)	1,026,819 (99.72%)	915,441 (98.60%)	1,670,780 (96.22%)	1,292,810 (63.01%)
Claims submitted to DMS greater than 30 days after adjudication	848,567 (13.59%)	8,274 (1.67%)	2,880 (0.28%)	12,996 (1.40%)	65,572 (3.78%)	758,845 (36.99%)

* DMS data was filtered to dispense dates between July 1, 2015 and September 30, 2015.

Pharmacy Claims Comparisons:

Table 1D shows the analysis on pharmacy claim matches between the MCO-submitted data to DMS' data extract. Data comparisons and table matches were made between MCO-submitted data and DMS data on Member IDs, dates of drug dispense and NDC codes. Provider IDs were left out of the claim comparisons as they were not complete for all MCOs. Passport Health Plan had nearly all of their claims matched with DMS data extracts at 99.61% of records matched. Anthem BCBS Medicaid, Humana-CareSource, and CoventryCares all had similar percentages of records matched; 87.44%, 87.22% and 87.15% of records matching on DMS data, respectively. Wellcare of KY, which had the largest volume of claims, had 86.47% of its submitted records matching with DMS data.

Table 1D footnotes indicate that MCO Medicaid IDs were populated with zeroes or had some indicator that the claims submitted were for newborns (e.g., Anthem BCBS Medicaid and Wellcare of KY had NB listed in the ID for several members and Humana-CareSource had listed "UNKNOWN" for newborn IDs). Upon querying a sample of DMS data, IPRO did not find "NB" listed in member IDs. DMS may wish to investigate or provide clarity on how claims submitted for newborns are captured in MIS, or identify if these records are rejected.

Table 1D: MCO-Submitted Pharmacy Claims Compared to DMS Data on ID, Date of Dispense and NDC Codes

MCO	Total Submitted Records	Records in MCO-submitted claims that did not match with DMS based on Medicaid ID, date of dispense and NDC codes	Records in MCO that matched with DMS based on Medicaid ID, date of dispense and NDC codes	Percentage of Records matched based on ID, date of dispense and NDC codes
MCO Total	5,574,918	571,008	5,003,910	89.76%
Anthem BCBS Medicaid¹	271,184	34,054 ⁴	237,130	87.44%
CoventryCares	735,373	94,485 ⁵	640,888	87.15%
Humana-CareSource²	855,036	109,313	745,723	87.22%
Passport Health Plan	1,288,481	5,010 ⁶	1,283,471	99.61%
Wellcare of KY³	2,424,844	328,146	2,096,698	86.47%

¹ Anthem BCBS Medicaid data issue 1: 55 members had missing Medicaid IDs (listed as '000000000000') and 25 members had "NB" as their ID, perhaps indicating newborn. These members did not have clear matches to DMS data.

² Humana-CareSource data issues: 12 members had incorrect Medicaid ID lengths (< 10 digits) and one ID "UNKNOWN" was listed for 92 members, for which data comparisons to DMS could not be made. At least 60 of those 92 were newborns.

³ Wellcare of KY data issues: 9 members had missing Medicaid IDs for which clear matches to DMS data could not be made. 59 members had "NB" in the ID; these were newborns using their mother's ID.

⁴ Anthem BCBS Medicaid data issue 2: 380 MCO-submitted claims had '0' entered for NDC codes.

⁵ CoventryCares data issue: 1,159 MCO-submitted claims had '0' entered for NDC codes.

⁶ Passport Health Plan data issue 1: There were 19 members with missing Medicaid IDs; these members did not have clear matches to DMS data.

⁷ Passport Health Plan data issue 2: 3,323 MCO-submitted claims had '0' entered for NDC codes.

Table 1E details the discrepant records for ID, date of drug dispense and NDC code. Anthem BCBS Medicaid and CoventryCares responded to more than the requested minimum of discrepant records. Anthem BCBS Medicaid responded to 96% of its discrepant records (32,695/34,054), and CoventryCares responded to 1.05% of its discrepant records (1,001/94,485). Humana-CareSource and Wellcare of KY responded to 99 records (one less than the minimum), and Passport Health Plan responded to the requested minimum of 100 records.

Table 1E shows that the overall majority of the discrepant records across MCOs were not submitted due to incorrect values found through internal checks, or because claim adjustments and reversals rendered them ineligible for state submission. Anthem BCBS Medicaid had 95.58%, Humana-CareSource had 83.83% and Wellcare of KY had 98.98% of its discrepant responses fall into this category, whereas CoventryCares had only 4.89% and Passport Health Plan had 0%.

The overall rate of successful submission for the discrepant responses was 6.27% (**Table 1E**). Anthem BCBS Medicaid, Humana-CareSource and Wellcare of KY had percentages of successful claim submission less than 10% of their sampled discrepant records (Anthem BCBS Medicaid had 4.16%, Humana-CareSource had 7.07%, and Wellcare of KY had 1.01%). However, CoventryCares and Passport Health Plan indicated that a majority of their records were successfully submitted to DMS (CoventryCares had 74.83% and Passport Health Plan had 100% of its sampled records fall into this category). Of the total successful submissions, IPRO, using data from DMS extracts as of 07/01/2016, found matches for only 22 of Anthem BCBS Medicaid's records with "successful claim submissions" responses. These matches occurred because these claims were submitted after IPRO conducted its initial query of the DMS dental data in March 2016.

In **Table 1E**, the overall rate for claims that were submitted but rejected was 0.25%. Anthem BCBS Medicaid had the same rate for claims that fell in this category. Humana-CareSource had 9.09 % of its discrepant record responses that also fell into the category of rejected claims. All other MCOs did not have responses fall into this category for its pharmacy discrepant records. Anthem BCBS Medicaid and CoventryCares both claimed they had some of their records still waiting to be accepted by the state. IPRO suggests that DMS investigate why these records may not have received a status of rejection or acceptance at the time of the received responses (approximately 06/17/2016).

Table 1E: Pharmacy Discrepancy Responses Breakdown

Responses	Anthem BCBS Medicaid Frequency (% of Responses)	CoventryCares Frequency (% of Responses)	Humana-CareSource Frequency (% of Responses)	Passport Health Plan Frequency (% of Responses)	Wellcare of KY Frequency (% of Responses)	Total Frequency (% of Total Responses)
Claim was not Submitted	31,251 (95.58%)	49 (4.89%)	83 (83.83%)	0 (0.00%)	98 (98.98%)	32,840 (92.89%)
Claim withheld due to incorrect values or incorrect membership	34	0	0	0	98	132
Claim was adjusted and/or reversed	31,215	0	83	0	0	31,215
NPI was not found on State file	0	0	0	0	0	0
Claim is pending release	2	49	0	0	0	51
Claim was successfully submitted to DMS	1,359 (4.16%)¹	749 (74.83%)²	7 (7.07%)³	100 (100%)⁴	1 (1.01%)⁵	2,216 (6.27%)
Submission Date provided	0	749	7	58	0	814
Submission Date not given	1,359	0	0	42	1	1,402
Found in DMS data as of 7/30/2016	22 ⁶	0	0	0	0	22
Claim was submitted but rejected by DMS	81 (0.25%)	0 (0.00%)	9 (9.09%)	0 (0.00%)	0 (0.00%)	90 (0.25%)
Rejection due to DMS edit checks	81	0	9	0	0	90
Other	4 (0.01%)	203 (20.28%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	207 (0.59%)
Claim was sent but received no response from the state	4	203	0	0	0	207
Total Responses	32,695	1,001	99	100	99	35,353
Total No Responses	1,359	93,484	109,214	4,190	328,048	537,871
Total Number of Discrepancy Records	34,054	94,485	109,313	5,010	328,146	535,655

¹ Anthem BCBS Medicaid had 238 records with zeroes for the NDC; matches could not be made for these records.

² All 749 records had zeroes for the NDC; matches could not be made for these records.

³ Humana-CareSource had 5 records with zeroes for the NDC; matches could not be made for these records.

⁴ Passport Health Plan had 67 records with zeroes for the NDC; matches could not be made for these records.

⁵ Wellcare of KY's 1 successfully submitted record was missing the Medicaid ID; matches could not be made for this member.

⁶ Anthem BCBS Medicaid had 22 records that matched in DMS data; 14 records were submitted to DMS after 04/01/2016; the remaining 8 records were submitted on 05/27/2016. Both submissions were sent after the analysis for pharmacy claim matches was performed.

Dental

Comparison of Dental Records between DMS and MCOs

Prior to matching data between MCO and DMS data extracts, date and record frequencies were run on both the MCO-submitted and DMS data. DMS data warehouse claims were initially queried for records in the requested adjudication period. Results showed that adjudication dates were missing for Anthem BCBS Medicaid and CoventryCares, and no records had been pulled for these two MCOs. For the purpose of comparing dates and record frequencies for all MCOs, IPRO filtered DMS data to dates of service from July 1, 2015 to September 30, 2015, and DMS submission dates from July 1, 2015 to October 31, 2015. MCO-submitted data was also filtered to dates from July 1, 2015 to September 30, 2015 in order to compare against the DMS data frequencies.

Table 2A shows each MCO's dental claim volume as a percentage of the Kentucky DMS dental data for dates of service from July 1, 2015 to September 30, 2015 and DMS submission dates from July 1, 2015 to September 30, 2015. Anthem BCBS Medicaid had the smallest proportion of the dental claims at 3%, followed by Humana-CareSource at 6%. CoventryCares, Passport Health Plan, and Wellcare of KY had 32%, 30%, and 28% of the dental claims, respectively.

Data errors found in the DMS dental data extracts:

- Dates of adjudication are missing.
- In a separate query of DMS dental data, CoventryCares and Passport Health Plan had missing values for dates of service. These appeared as '01/01/1900.'

Table 2A: Kentucky Data Warehouse Dental Data Date Frequency

MCO	# Records Count (% of aggregate MCO data)* ¹	Minimum Date of Service	Maximum Date of Service	Minimum MCO Adjudication Date	Maximum Adjudication Date	Minimum Kentucky Processing Date	Maximum Kentucky Processing Date
Anthem BCBS Medicaid	22,197 (3%)	07/01/2015	09/30/2015	1/1/1900 ²	1/1/1900 ²	07/24/2015	10/30/2015
CoventryCares	258,373 (32%)	07/01/2015	09/30/2015	07/08/2015	10/21/2015	07/17/2015	10/30/2015
Humana-CareSource	51,900 (6%)	07/01/2015	09/30/2015	1/1/1900 ²	1/1/1900 ²	07/24/2015	10/30/2015
Passport Health Plan	244,188 (30%)	07/01/2015	09/30/2015	07/08/2015	10/21/2015	07/17/2015	10/30/2015
Wellcare of KY	225,354 (28%)	07/01/2015	09/30/2015	07/08/2015	10/14/2015	07/24/2015	10/30/2015
Total	802,012						

*Data extracted on 03/16/2016.

¹ DMS does not capture adjudication dates from some MCOs. For the purpose of comparing aggregated MCO date frequencies against the DMS date frequencies, IPRO filtered the DMS' data to all dental claims submitted to DMS between July 1, 2015 and October 31, 2015, and all dates of service listed between July 1, 2015 and September 30, 2015.

² Adjudication Dates are missing in the Kentucky DMS Data Warehouse and are listed as 1/1/1900; analysis on lagging claim submissions to DMS cannot be conducted for this MCO.

Table 2B shows each MCO's proportion of the total submitted dental claims for adjudication dates from July 1, 2015 to September 30, 2015 and dates of service from July 1, 2015 to September 30, 2015. Similar to **Table 2A**, Anthem BCBS Medicaid and Humana-CareSource had the smallest proportion of submitted dental claims; Anthem BCBS Medicaid had 4% and Humana-CareSource had 5% of the submitted dental claims. Although Wellcare of KY had the third largest proportion of claims in the DMS extract (**Table 2A**), Wellcare of KY's submitted claims were the largest proportion of the total MCO-submitted claims with 37%. CoventryCares had 28% and Passport Health Plan had 27% of the total MCO-submitted dental claims.

Table 2B: MCO-Submitted Dental Data Date Frequency

MCO	Original Submission Records	Total Records Count (% of aggregate Kentucky MCO data) ¹	Minimum Date of Service ¹	Maximum Date of Service ¹	Minimum MCO Adjudication Date for all claims ¹	Maximum Adjudication Date for all claims ¹
Anthem BCBS Medicaid	40,486	30,289 (4%) ²	07/01/2015	9/28/2015	7/7/2015	9/29/2015
CoventryCares	284,746	227,029 (28%)	07/01/2015	9/30/2015	7/8/2015	9/30/2015
Humana-CareSource	81,660	40,681 (5%)	07/01/2015	9/23/2015	7/8/2015	9/30/2015
Passport Health Plan	282,889	222,288 (27%)	07/01/2015	9/30/2015	7/8/2015	9/30/2015
Wellcare of KY	335,392	300,217 (37%) ²	07/01/2015	9/30/2015	7/8/2015	9/30/2015
Total	1,025,173	820,504				

¹ All MCOs submitted data for claims adjudicated from July 1, 2015 to September 30, 2015. Since there were missing adjudication dates in DMS data, IPRO filtered the MCO-submitted data to all dates of Service between July 1, 2015 and September 30, 2015 to check for date/frequency comparisons,

² The proportion of Anthem BCBS Medicaid and Wellcare of KY submitted claims data was slightly higher than what was captured in DMS data for a similar time period.

Dental Claim Volume Analysis

Figures 2A, B, C, D, and E display the claim volume per date of service from July 1, 2015 to September 30, 2015. All five tables show that frequency and pattern of MCO-submitted claim volume correspond with DMS data extracts claim volume. CoventryCares (**Figure 2B**), Humana-CareSource (**Figure 2C**), and Passport Health Plan (**Figure 2D**) had similar volumes between MCO and DMS data. This matches with **Tables 2A** and **2B**, as volume of records are nearly the same. For Anthem BCBS Medicaid and Wellcare of KY, MCO data seems to be overreporting what DMS data extracts show per diem. This also validates the data shown in **Tables 2A** and **2B**, where Wellcare of KY and Anthem BCBS Medicaid have slightly larger proportions of the MCO total submitted data versus the DMS data extract. A plausible reason could be MCOs pulled claims originally adjudicated during the July to September time period; those very claims may be captured in DMS data with the most recent adjudication date and not the original adjudication date.

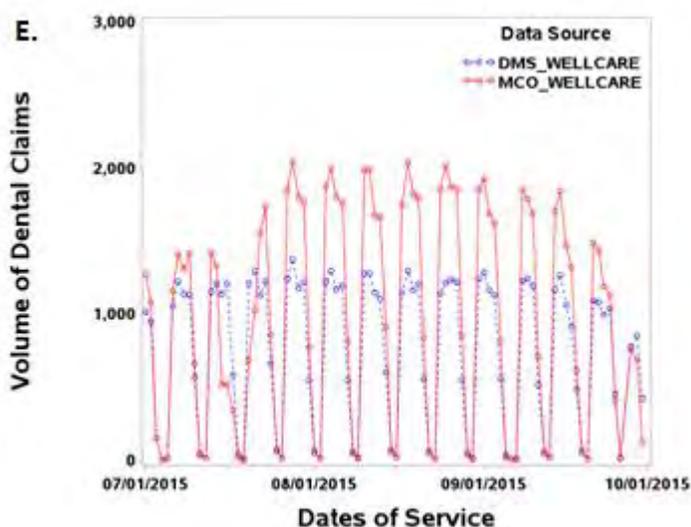
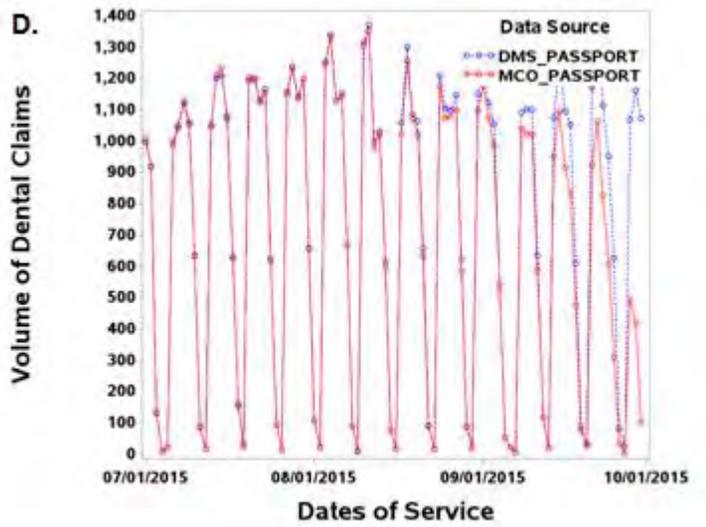
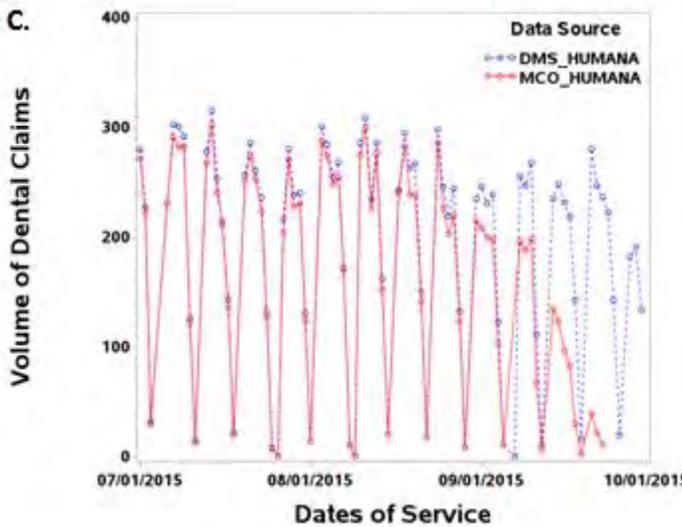
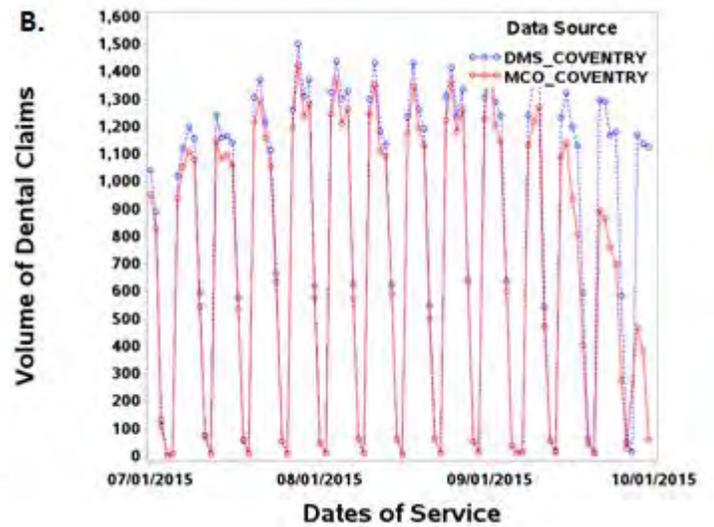
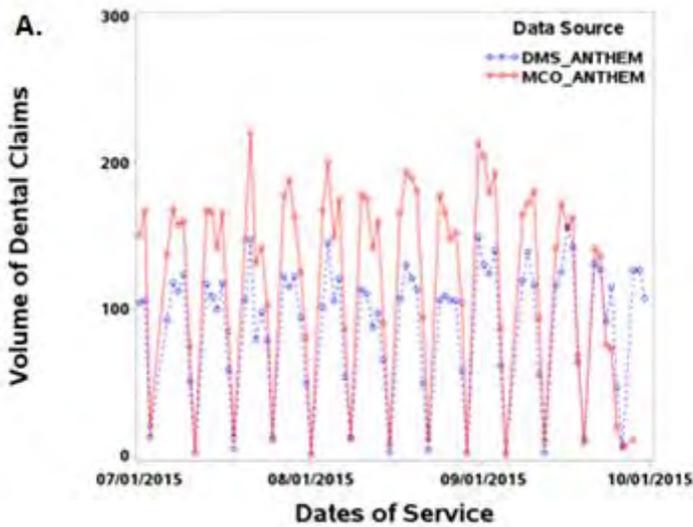


Figure 2: Dental Claim Volumes per Diem from DMS-Extracted and MCO-Submitted Data
 Dental claim volume totals for claims per diem for dates of service between July 1, 2015-September 30, 2015. DMS data was filtered for all received data between July 1, 2015 to October 30, 2015 and MCO data was for adjudicated claims from July 1, 2015 to September 30, 2015. Data is shown for Anthem BCBS Medicaid (A), CoventryCares (B), Humana-CareSource (C), Passport Health Plan (D) and Wellcare of KY (E) with DMS data in blue and MCO data in red.

Dental Lagging Claim Analysis

Table 2C is a lagging claim analysis of DMS data for claims submitted to DMS from July 1, 2015 to October 30, 2015, and for dates of service from July 1, 2015 to September 30, 2015 after claim adjudication. It should be noted that for the total reported values, the values reported are based on only 3 of the 5 MCOs (CoventryCares, Passport Health Plan and Wellcare of KY) because adjudication dates were missing. Overall, 98.95% of all adjudicated claims were submitted to DMS within 30 days of adjudication. Passport Health Plan had the highest rate of submission after adjudication with 99.15% of its submitted records. CoventryCares and Wellcare of KY had similar rates of submission; CoventryCares had 98.96% and Wellcare of KY had 98.73% of its DMS data records indicating they were submitted within a 30-day timeframe after adjudication.

Table 2C: Dental Lagging Claims Analysis for DMS Captured Data (Dispense Dates and Adjudication Dates between July 1, 2015 and September 30, 2015)

	Total DMS Data* Count (row %)	Anthem BCBS Medicaid Count (row %)	CoventryCares Count (row %)	Humana-CareSource Count (row %)	Passport Health Plan Count (row %)	Wellcare of KY Count (row %)
Adjudicated Claims Submission to DMS	n=727,915	N/A	n=258,373	N/A	n=244,188	n=225,354
Claims submitted to DMS within 30 days of adjudication	720,277 (98.95%)	N/A	255,675 (98.96%)	N/A	242,117 (99.15%)	222,485 (98.73%)
Claims submitted to DMS greater than 30 days after adjudication	7,638 (1.05%)	N/A	2,698 (1.04%)	N/A	2,071 (0.85%)	2,869 (1.27%)

* DMS data was filtered to dates of service between July 1, 2015 and September 30, 2015 and does not include data for Anthem BCBS Medicaid and Humana-CareSource because of missing dates of adjudication.

Dental Claims Comparisons

Table 2D shows the analysis on dental claim matches between the MCO-submitted data and DMS' data extract. Data comparisons and table matches were made between MCO-submitted data and DMS data on Member IDs, dates of service and CDT codes. Provider IDs were not complete for all MCOs; this was left out of the claim comparisons. For the purpose of claim comparisons, DMS data for dental claims was not filtered; the whole table of data extracts was matched against the MCO-submitted data on date of service.

Passport Health Plan, Humana-CareSource and CoventryCares had nearly all of their submitted claims matched with DMS data extracts. Passport Health Plan had a 99.84% match, CoventryCares had 99.79%, and Humana-CareSource had a 99.54% match rate (**Table 2D**). Anthem BCBS Medicaid and Wellcare of KY, however, had the lowest percentages of records matched. Anthem BCBS Medicaid had 88.64% of its submitted records matched to DMS data, whereas Wellcare of KY had the lowest rate of matched records, with 77.24% (**Table 2D**). Anthem BCBS Medicaid and Wellcare of KY reported slightly higher volumes of data for the studied time period (**Figure 2**), so the discrepancy may be because certain records reported by the MCO were not captured in DMS data. The overall rate of MCO-submitted records matched to DMS data on ID, date of service, and CDT codes was 91.97%.

Table 2D: MCO-Submitted Dental Claims Compared to DMS Data on ID, Date of Service and CDT Codes

MCO	Total Submitted Records	Records in MCO-submitted claims that did not match with DMS based on Medicaid ID, date of dispense and NDC codes	Records in MCO that matched with DMS based on Medicaid ID, Date of Service and CPT/CDT codes	Percentage of Records matched based on ID, Date of Service and CPT/CDT codes
MCO Total	1,025,173	82,371	942,802	91.97%
Anthem BCBS Medicaid	40,486	4,601	35,885	88.64%
CoventryCares	284,746	600	284,146	99.79%
Humana-CareSource ¹	81,660	373	81,287	99.54%
Passport Health Plan	282,889	463	282,426	99.84%
Wellcare of KY ²	335,392	76,334	259,058	77.24%

¹ Humana-CareSource had one missing ID number.

² Wellcare of KY had 60 out of 247 unmatched member IDs with incorrect lengths.

Table 2E details the findings from MCOs on the discrepant records (claims that could not be matched to DMS data on ID, date of service and CDT code). Anthem BCBS Medicaid, CoventryCares and Passport Health Plan provided more than the requested minimum of discrepant records. CoventryCares and Passport Health Plan responded to 100% of their discrepant records, whereas Anthem BCBS Medicaid responded to 96.46% its discrepant records (4,438/4,601). Wellcare of KY responded to the minimum requested number of records, 100 (0.13%), and Humana-CareSource responded to 96 of their discrepant records (25.73%).

Anthem BCBS Medicaid and CoventryCares had none of their sampled discrepant record responses bucketed under the "Claim was not submitted" category (**Table 2E**). However, **Table 2E** shows that Wellcare of KY, who had the largest number of discrepant records, had 98% of its responded claims under the category of "Claim was not submitted." These 98 records were duplicated records, making them ineligible for state submission. Humana-CareSource had 37.50% of its 96 sampled records and Passport Health Plan had 46.22% of its sampled records listed as not submitted to DMS due to internal edit checks.

Anthem BCBS Medicaid and Wellcare of KY had none of their sampled discrepant records bucketed under the "Claim was successfully submitted to DMS" category. CoventryCares indicated that 93% of their sampled discrepant records were successfully submitted, whereas Humana-CareSource had 27.08% and Passport Health Plan had 53.35% of their records bucketed under this category (**Table 2E**). IPRO checked this category of response claims against the DMS data warehouse dental file with data as of July 1, 2016 and found a small number of matches for CoventryCares and Humana-

CareSource. For CoventryCares, 18 of the 19 records that were found matched to DMS data were submitted to DMS months prior to the study period (July 2015), hence why these may not have been matched initially. The remaining one record that matched had an MCO adjudication date listed as 10/07/2015, which was outside the range of the adjudication study date. For Humana-CareSource, 4 records out of the total 26 discrepant records bucketed under “claim was successfully submitted” were found in the DMS data extract files but submission dates indicated the claims were submitted after IPRO’s study of the DMS data warehouse claims, hence why these matches were missed.

For “Claim was submitted but rejected by DMS,” Anthem BCBS Medicaid had all of its sampled discrepancy records listed under this category (**Table 2E**). Humana-CareSource had over a third of its sampled discrepancy records listed under the same category (35.42%) and CoventryCares had 7% of its sampled discrepancy records also bucketed in the same category. Both Wellcare of KY and Passport Health Plan had two sampled discrepant records listed as rejected by DMS.

Wellcare of KY had nearly all its sampled discrepant records listed as not submitted, but Anthem BCBS Medicaid had all its sampled discrepant records listed as submitted but rejected by DMS due to edit checks. Humana-CareSource had nearly a third of its sampled records listed as not submitted, rejected or as successfully submitted to DMS. Passport Health Plan had nearly half of its sampled discrepant records listed as “not submitted” and the majority of the remaining responses listed under as “successfully submitted to the state.” CoventryCares had the majority of its sampled discrepant records listed under as “successfully submitted” but IPRO only found matches on 19 out of the total 558 discrepant records listed under this category.

Table 2E: Dental Discrepancy Responses Breakdown

Responses	Anthem BCBS Medicaid Frequency (% of Responses)	CoventryCares Frequency (% of Responses)	Humana- CareSource Frequency (% of Responses)	Passport Health Plan Frequency (% of Responses)	Wellcare of KY Frequency (% of Responses)	Total Frequency (% of Total Responses)
Claim was not Submitted	0 (0.00%)	0 (0.00%)	36 (37.5%)	214 (46.22%)	98 (98%)	348 (6.11%)
Claim withheld due to incorrect values or incorrect membership	0	0	36	214	0	250
Claim was a duplicate	0	0	0	0	98	0
Claim was successfully submitted to DMS	0 (0.00%)	558 (93.00%)	26 (27.08%)	247 (53.35%)	0 (0.00%)	831 (14.58%)
Submission Date provided	0	558	26	247 ³	0	831
Found in DMS data as of 7/30/2016	0	19 ¹	4 ²	0	0	23
Claim was submitted but rejected by DMS	4,438 (100%)	42 (7%)	34 (35.42%)	2 (0.43%)	2 (2%)	4,518 (79.30%)
Rejection due to DMS edit checks	4,438	42	34	2	2	4,518
Other	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)
Total Responses	4,438	600	96	463	100	5,697
Total No Responses	163	0	277	0	76,224	76,664
Total Number of Discrepancy Records	4,601	600	373	463	76,334	82,371

¹ 18 out of 19 records were submitted and loaded into DMS data warehouse months prior to the requested study period. 1 out of 19 records shows an adjudication date of 10/07/2015 and was loaded into Kentucky's data warehouse after 10/30/2015.

² Of the 26 records, 4 had matches to DW; these were resubmitted claims on 4/25/2016, which was after IPRO's analysis of the claims. Of the remaining 22 records that did not match, 15 records did not have matches on CDT even though Medicaid ID and Date of Service were found; for some records, the MCO-submitted CPT field had incorrect CDT values "DD" for 31 of its discrepant records.

³ Passport Health Plan submitted four records that matched on Medicaid ID and Date of service but not on CDT code.

Medical

Comparison of Medical Records between DMS and MCOs

Prior to matching data between MCO and DMS data extracts, date and record frequencies were run both the MCO-submitted and DMS data. DMS data warehouse claims were initially queried for records in the requested adjudication period. Results showed missing adjudication dates across MCOs. To better compare dates and record frequencies for all MCOs against the DMS data, IPRO filtered DMS data to dates of service from July 1, 2015 to September 30, 2015 and DMS submission dates from July 1, 2015 to October 31, 2015. MCO-submitted data was also filtered to dates from July 1, 2015 to September 30, 2015 in order to compare against the DMS date frequencies.

Table 3A shows each MCO's medical claim volume as a percentage of the Kentucky DMS medical encounter data for dates of service from July 1, 2015 to September 30, 2015 and DMS submission dates from July 1, 2015 to September 30, 2015. Anthem BCBS Medicaid had the smallest proportion of the medical claims at 6.27%; Humana-CareSource had 8.8%, CoventryCares had 22.12%, and Passport Health Plan had 23.26%. Wellcare of KY, similar to the pharmacy and medical DMS claims extracts, had the largest volume of records with 39.56% of the DMS data.

Data errors found in the DMS dental data extracts:

- Dates of adjudication are missing or have incorrect values (e.g., future dates are captured).

Table 3A: Kentucky Data Warehouse Medical Encounter Data Date Frequency

MCO	# Records Count ^{*,1} (% of aggregate MCO data)	Minimum Date of Service	Maximum Date of Service	Minimum MCO Adjudication Date ²	Maximum Adjudication Date	Minimum Kentucky Processing Date	Maximum Kentucky Processing Date
Anthem BCBS Medicaid	807,143 (6.27%)	07/01/2015	09/30/2015	01/01/1900	01/01/1900	07/17/2015	10/30/2015
CoventryCares	2,845,098 (22.12%)	07/01/2015	09/30/2015	01/01/1900	10/23/2015	07/10/2015	10/30/2015
Humana-CareSource	1,131,673 (8.8%)	07/01/2015	09/30/2015	07/08/2015	10/14/2015	07/24/2015	10/30/2015
Passport Health Plan	2,991,799 (23.26%)	07/01/2015	09/30/2015	01/01/1900	10/20/2015	07/17/2015	10/30/2015
Wellcare of KY	5,087,872 (39.56%)	07/01/2015	09/30/2015	07/07/2015	8/12/2105 ¹	07/17/2015	10/30/2015
Total	12,863,585						

*Data extracted on April 9, 2016

¹ DMS does not capture adjudication dates from some MCOs. To compare aggregated MCO date frequencies against the DMS date frequencies, IPRO filtered the DMS' data to all Medical claims submitted to DMS from July 1, 2015 and October 31, 2015 and all dates of service listed between July 1, 2015 and September 30, 2015.

² Kentucky data warehouse captured minimum Adjudication dates that equaled '01/01/1900': Anthem BCBS Medicaid had 753,276 records, Humana-CareSource had 7,641 records, CoventryCares had 95,728 records, Passport Health Plan had 142,512 records, and Wellcare of KY had 19,032 records.

Table 3B shows each MCO's proportion of the total submitted medical claims for adjudication dates between July 1, 2015 to September 30, 2015 and dates of service between July 1, 2015 and September 30, 2015. Similar to **Table 3A**, Anthem BCBS Medicaid and Humana-CareSource had the smallest proportion of submitted dental claims; Anthem BCBS Medicaid had 5.2% of the submitted claims and Humana-CareSource had 10.78% of the submitted medical claims. Wellcare of KY's submitted claims were the largest proportion of the total submitted claims with 34.78%, while CoventryCares had 20.8% and Passport Health Plan had 28.44% of the total submitted medical claims. Proportions of MCO data were comparable between the DMS data and MCO-submitted data; Anthem BCBS Medicaid and CoventryCares showed slightly lower percentages than was found in DMS data and the remaining three MCOs had slightly higher proportions of the submitted data than was found in the DMS data.

Table 3B: MCO-Submitted Medical Encounter Data Date Frequency

MCO	Original Submission Records	Total Records Count* (% of aggregate Kentucky MCO data)	Minimum Date of Service*	Maximum Date of Service*	Minimum MCO Adjudication Date for all claims*	Maximum Adjudication Date for all claims*
Anthem BCBS Medicaid	677,427	441,814 (5.2%)	07/01/2015	9/24/2015	7/4/2015	9/30/2015
CoventryCares	3,247,937	1,765,469 (20.8%)	07/01/2015	9/29/2015	7/2/2015	9/30/2015
Humana-CareSource	2,158,899	914,896 (10.78%)	07/01/2015	9/29/2015	7/8/2015	9/30/2015
Passport Health Plan	4,165,877	2,414,466 (28.44%)	07/01/2015	9/29/2015	7/6/2015	9/30/2015
Wellcare of KY	4,734,736	2,952,572 (34.78%)	07/01/2015	9/23/2015	7/7/2015	9/29/2015
Total	14,984,876	8,489,217				

* All MCOs submitted data for claims adjudicated from July 1, 2015 to September 30, 2015. IPRO filtered the MCO data to all Dates of Service between July 1, 2015 and September 30, 2015 as there was missing adjudication dates in DMS data,

Medical Claim Volume Analysis

Figures 3A, B, C, D, and E display the medical encounter claim volume per date of service from July 1, 2015 to September 30, 2015. As stated before, DMS data was limited to all submission dates between July 1, 2015 and September 30, 2015. All five tables show that the frequency and pattern of MCO claim volumes resemble that of DMS data, but MCO encounter volumes are much less in than what is captured in DMS data. This validates the data in **Table 3A** and **3B**. Since adjudication dates are not listed for all MCOs in DMS data, IPRO decided to restrict data to submissions dates from July 1, 2015 to October 30, 2015 with the assumption that the majority of all adjudicated claims for the requested time period would have been submitted in that submission period. It is possible that MCOs may have resubmitted these adjudicated claims more than once to DMS during that submission period for any additional payments or adjustments made to the original claims. However, given that DMS does not capture MCO original claim numbers on submitted files, IPRO cannot verify this assumption.

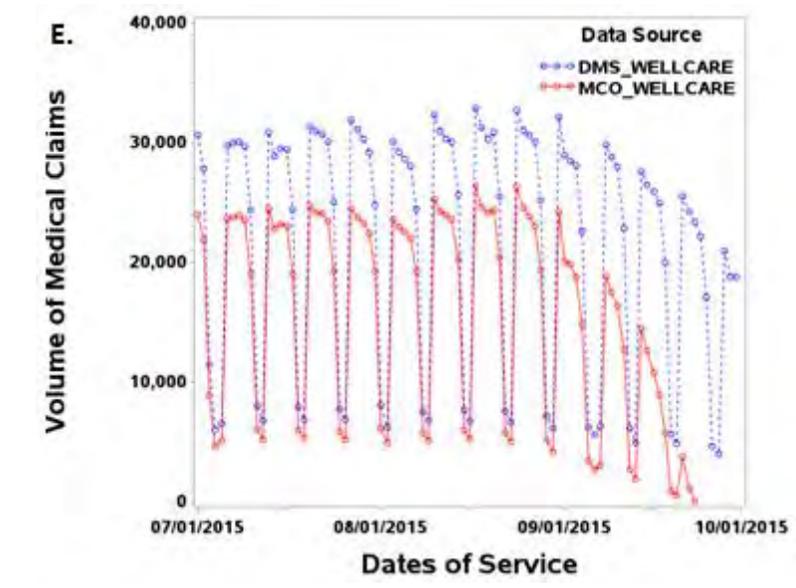
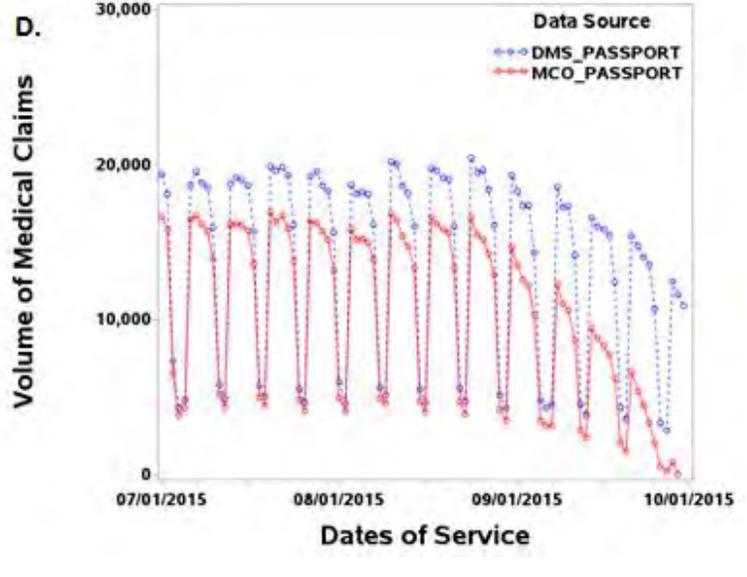
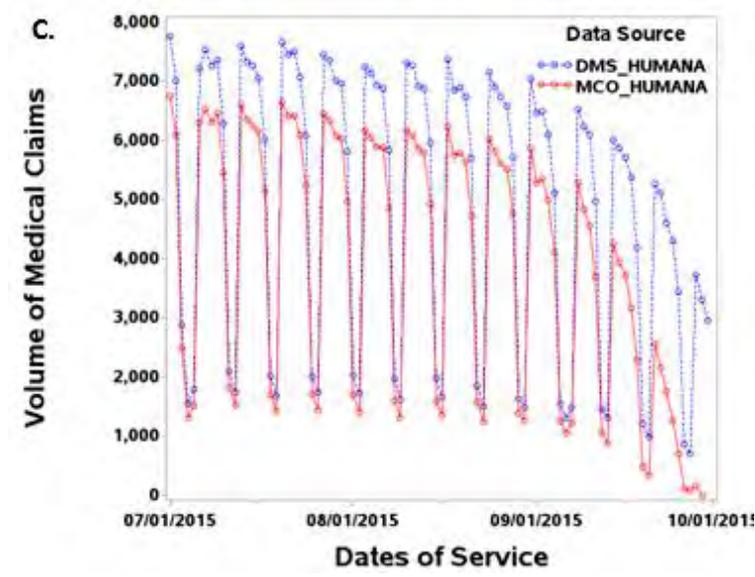
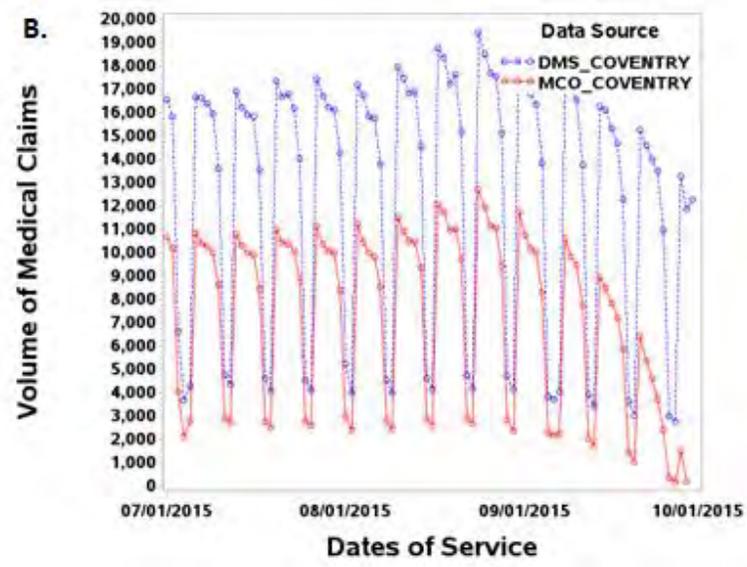
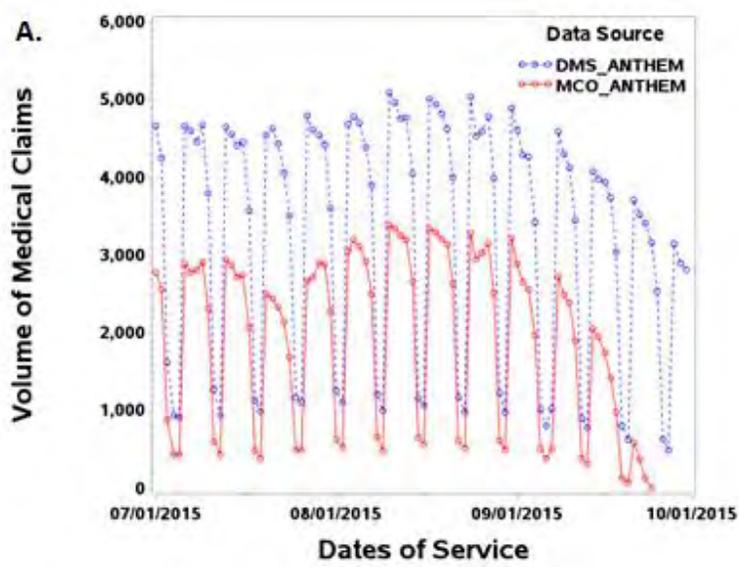


Figure 3: Medical Encounter Claim Volumes per Diem from DMS-Extracted and MCO-Submitted Data

Medical Encounter claim volume totals per diem for dates of service between July 1, 2015-September 30, 2015. DMS data was filtered for all received data between July 1, 2015 to October 30, 2015 and MCO data was for adjudicated claims from July 1, 2015 to September 30, 2015. Data is shown for Anthem BCBS Medicaid (A), CoventryCares (B), Humana-CareSource (C), Passport Health Plan (D) and Wellcare of KY (E) with DMS data in blue and MCO data in red.

Medical Lagging Claim Analysis

Table 3C is a lagging claim analysis of DMS data for claims submitted to DMS from July 1, 2015 to October 30, 2015 and for dates of adjudication from July 1, 2015 to September 30, 2015. It should be noted that for the total reported values, the values reported are based on only 4 of the 5 MCOs (Humana-CareSource, CoventryCares, Passport Health Plan and Wellcare of KY) because adjudication dates were missing. Also note that the adjudicated claims total for each MCO was based on the query logic that claims should not have missing values ('01/01/1900'), hence reported totals are much lower than actual claim counts for CoventryCares and Passport Health Plan. Overall, 53.48% of all adjudicated claims were submitted to DMS within 30 days of adjudication and the remaining 46.52% of adjudicated claims were submitted more than 30 days after adjudication; although not shown in Table 3C, 96.57% of those later submissions to DMS were submitted between 31 to 90 days (5,298,472/5,486,665).

CoventryCares had the highest rate of submission 30 days after adjudication with 59.99% of its submitted records. Passport Health Plan followed with 52.56% and Wellcare of KY with 58.19% of its records being submitted timely. Humana-CareSource had the lowest percentage of claims submitted within 30 days at a rate of 18.9%.

Ranking the MCOs by percentage of claims submitted to DMS more than 30 days post-adjudication in ascending order, CoventryCares had 40.01%, Wellcare of KY 41.81%, Passport Health Plan 47.36% and Humana-CareSource 81.10% (**Table 3C**). Although the figures are not listed in Table 3C, 96.17% of CoventryCares' later submissions (1,055,766/1,097,818), 95.93% of Humana-CareSource's later submissions (880,478/917,856), 96.26% of Passport Health Plan's later submissions (1,293,597/1,343,817) and 97.25% of Wellcare of KY's later submissions were submitted within a 31 to 90 day timeframe (2,068,631/2,127,174).

The low numbers for each MCO's timely submissions within 30 days of adjudication may be attributed to claims undergoing adjustments or review after the original adjudication date, causing a delay in their submission to the state MIS system; another possibility may be that claims are resubmitted to the state if original submissions do not pass the load edit checks on the state system, so the total volume of encounters are resubmitted at a later date.

Table 3C: Medical Lagging Claims Analysis for DMS Captured Data (Dispense Dates and Adjudication Dates between July 1, 2015 and September 30, 2015)

	Total DMS Data*	Anthem BCBS Medicaid	CoventryCares	Humana-CareSource	Passport Health Plan	Wellcare of KY
	Count (row %)	Count (row %)	Count (row %)	Count (row %)	Count (row %)	Count (row %)
Adjudicated Claims Submission to DMS	n=11,796,249	N/A	n=2,743,823	n=1,131,673	n=2,832,881	n=5,087,872
Claims submitted to DMS within 30 days of adjudication	6,309,611 (53.48%)	N/A	1,646,005 (59.99%)	213,817 (18.9%)	1,489,064 (52.56%)	2,960,725 (58.19%)
Claims submitted to DMS greater than 30 days after adjudication	5,486,638 (46.52%)	N/A	1,097,818 (40.01%)	917,856 (81.10%)	1,343,817 (47.36%)	2,127,174 (41.81%)

* IPRO restricted DMS data to date of service and date of adjudication from July 1, 2015 to September 30, 2015, and the date of Adjudication not equal to 01/01/1900 for comparison of lagging claims.

Medical Claims Comparisons

Table 3D shows the analysis on medical claim matches between the MCO-submitted data to DMS' data extract. Data comparisons and table matches were made between MCO-submitted data and DMS data on Member IDs, dates of service and CPT and Primary Diagnosis Codes. DRG, ICD9 Procedure codes and Revenue Codes were also checked for

matches between the two sources, but CPT and Primary Diagnosis were the codes of interest for Medical claim matches. Provider IDs were not complete for all MCOs; this was left out of the claim comparisons. IPRO would like to note that the matches made against DMS data for medical claims, as well as the other claim types, are partial matches given that provider IDs and payment information were not included. Since MCO data were restricted to the first four diagnosis codes for the file layouts, IPRO decided table comparisons should concentrate on primary diagnosis code fields ('DIAG1' on file layouts) and CPT codes. The percentages of claims matched displayed in **Table 3C** are percentages for partial or full matches to claims in DMS data warehouse.

For the purpose of claim comparisons, DMS data for medical claims was not filtered; rather, all DMS data extracts were matched against the MCO-submitted data on date of service. Records that produced no matches to ID, date of service, Primary Diagnosis and CPT and/or any of the other submitted codes were deemed discrepant. Any records not matched were submitted to MCOs for review, and responses were sent back.

On August 1, 2016, IPRO discovered that one encounter table for DMS (Encounter Data for Health Homes) was not included in the matches against the MCO-submitted data, so Table 3D was updated with an adjusted percentage of records matched on ID, date of service, CPT and Primary Diagnosis codes. This significantly changed the percentages of matched records for the overall rate, and for Humana-CareSource.

Anthem BCBS Medicaid, CoventryCares, Humana-CareSource and Passport Health Plan saw small changes to the percentages of their matched records. Humana-CareSource originally had the lowest records matched to DMS on ID, date of service, CPT and Primary Diagnosis (83.84%), but with the additional matches found through DMS's Health homes encounter table, the percent increased to 99.1% of records matched. Anthem BCBS Medicaid, the smallest proportion of the MCO submissions, had the lowest percentage of matches at 94.99%. Wellcare of KY, the largest proportion of the MCO submissions, had the second lowest rate of claims matched at 96.95%. CoventryCares had 99.53% of records matched and Passport Health Plan had 99.07% of their records matched to DMS data.

Table 3D: MCO-Submitted Medical Claims Compared to DMS Data on ID, Date of Service and Primary Diagnosis Codes, CPT and/or DRG and/or REV Codes

MCO	Total Submitted Records	Records in MCO-submitted claims that did not match with DMS based on Medicaid ID, Date of Service and CPT, Primary Diagnosis and/or DRG and/or REV	Records in MCO that matched with DMS based on Medicaid ID, Date of Service and CPT, Primary Diagnosis and/or DRG and/or REV	Percentage of Records Matched	08/01/2016 Adjustment to non-matched records (Match restricted to ID, Date of Service, CPT and Primary Diagnosis)*	08/01/2016 Adjustment to matched records (Match restricted to ID, Date of Service, CPT and Primary Diagnosis)*	Adjusted Percentage of Records Matched*
MCO	14,984,876	619,183	14,365,693	95.87%	252,020	14,732,856	98.32%
Anthem BCBS Medicaid	677,427	35,902	641,525	94.7%	33955	643,472	94.99%
CoventryCares	3,247,937	29,689	3,218,248	99.09%	15358	3,232,579	99.53%
Humana-CareSource	2,158,899	348,971	1,809,928	83.84%	19425	2,139,474	99.1%
Passport Health Plan	4,165,877	53,242	4,112,635	98.72%	38685	4,127,192	99.07%
Wellcare of KY	4,734,736	151,379	4,583,357	96.8%	144597	4,590,139	96.95%

* On 08/01/2016, after reviewing discrepancy record responses from MCOs, IPRO investigated responses where claims were deemed successfully submitted but did not match initially in April 2016. Upon review, one DMS encounter table was not included in the original query for DMS data extracts (Encounter data for Home Health), and a number of discrepant records were matched to this table. IPRO adjusted the originally reported percentages of records matched to reflect the new count of records matched on CPT and Primary Diagnosis and included the adjusted rate in Table 3D.

Table 3E describes the MCO responses received compared to the original list of discrepant records sent by IPRO. CoventryCares, Humana-CareSource, Passport Health Plan and Wellcare of KY responded to the minimum requested number of records. Anthem BCBS Medicaid responded to approximately 97% of their discrepant records.

Overall, 5.68% of discrepant claims were bucketed under “Claim was not submitted.” If claims were found to have errors, incorrect NPIs, or were pending review, these records were not submitted to the state lest they be rejected by the state for the same reasons. Similarly, Anthem BCBS Medicaid had 5.39% of their records bucketed in this category. Originally, 5,333 of their discrepant claims were under “Other”, but upon review of an updated response sent by email on July 25, 2016, IPRO broke out 1,877 claims into the “not submitted” category and the rest into the “claim was submitted” category, given the MCO’s response that these claims were “resolved”. CoventryCares had 21.78%, Passport Health Plan had 17% and Humana-CareSource had 12% of their sampled discrepant responses in the “not submitted” category. Wellcare of KY, the largest of the MCOs, had the highest percentage of sampled responses as “not submitted” (**Table 3E**, 72%).

Approximately 87% of all sampled responses were bucketed under “Claim was submitted to the State.” The majority of these claims came from Anthem BCBS Medicaid, who had 87.93% of their claims listed as submitted (including the 3,456 “Other” response claims IPRO deemed submitted). CoventryCares, Humana-

CareSource and Passport Health Plan had similar percentages; CoventryCares had 49.5%, Humana-CareSource had 51% and Passport Health Plan had 40% of their sampled discrepant records listed as submitted to DMS. Wellcare of KY had 16% of their sampled responses bucketed into this category.

Wellcare of KY had 12% of their sampled discrepant records listed as “submitted but rejected” whereas CoventryCares, Humana-CareSource and Passport Health Plan had over a quarter of their sampled records listed in the same category; CoventryCares had 28.71%, Humana-CareSource had 37% and Passport Health Plan had 43% of their sampled discrepant records listed as rejected by the state due to state edit checks. Anthem BCBS Medicaid had 6.67% of its discrepant response claims listed as “rejected by the state,” which was close to the overall rate across all MCOs, 6.94%.

When researching discrepant claims matched against aggregated DMS data, IPRO discovered the majority of these claims were matched against the DMS encounter data for Health Homes. IPRO reran its queries and adjusted Table **3D** to show the percentages of records matched. This discovery was found after the original analysis.

Table 3E: Medical Discrepancy Responses Breakdown

Responses	Anthem BCBS Medicaid Frequency (% of Responses)	CoventryCares Frequency (% of Responses)	Humana-CareSource Frequency (% of Responses)	Passport Health Plan Frequency (% of Responses)	Wellcare of KY Frequency (% of Responses)	Total Frequency (% of Total Responses)
Claim was not submitted	1877 (5.39%)¹	22 (21.78%)	12 (12%)³	17 (17%)	72 (72%)	2000 (5.68%)
Claim withheld due to incorrect values or incorrect membership	0	22	12	17	39	90
Claims are in "Pended" status and will be submitted	1,877	0	0	0	0	1,877
Claim was a duplicate	0	0	0	0	2	2
NPI was not found on State file	0	0	0	0	31	31
Claim was submitted to DMS	30,624 (87.93%)²	50 (49.5%)	51 (51.00%)	40 (40.00%)	16 (16.00%)	30,781 (87.38%)
Submission Date provided	27,168	50	51	41	0	27,310
As of 08/01/2016, claims found in DMS data	2090 ⁴	36 ⁵	35 ⁶	29 ⁷	16 ⁸	2206
Claim was submitted but rejected by DMS	2,323 (6.67%)	29 (28.71%)	37 (37.00%)³	43 (43.00%)	12 (12.00%)	2,444 (6.94%)
Rejection due to DMS edit checks	2,323	29	37	43	12	2,444
Other	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)
Claim was sent but received no response from the state	0	0	0	0	0	0
Total Responses	34,824	101	100	100	100	35,225
Total No Responses	1,078	29,588	348,875	53,142	151,279	583,962
Total Discrepant Records	35,902	29,689	348,971	53,242	151,379	619,183

¹ IPRO asked Anthem BCBS Medicaid to clarify the original 5,333 "Other" status responses. Anthem BCBS Medicaid responded that 3,456 records had been "resolved" since their last contact with IPRO, we assume this means that these will be submitted to the state if they have not already; the status of their submission is not known at the time of this report. IPRO grouped these 3,456 under the "submitted to DMS" category. 1,877 claims were still in pended status and the MCO will work to resolve these encounters.

² 18,860 of the 30,264 records that were deemed submitted to DMS had dates of service 1/1/1900; IPRO did not match on these records when rechecking DMS data.

³ Of the 19 records listed as "Claim was not submitted," 7 indicated that the records were submitted but were rejected at DMS gateway due to structural issues. IPRO categorized these under "Claim was submitted but rejected by DMS."

⁴ Of the 2,090, 1,985 records were found matched based on the DMS encounter data for Health Homes.

⁵ All 36 records were found matched based on the DMS encounter data for Health Homes.

⁶ Of the 35, 33 records were found matched based on the DMS encounter data for Health Homes.

⁷ Of the 29 records, 28 were found matched based on the DMS encounter data for Health Homes.

⁸ All 16 records were found matched based on the DMS encounter data for Health Homes.

Conclusion

The objective of this encounter data validation study was to assess if MCO medical, dental and pharmacy claims for a given adjudication date would match those encounters that resided in the IPRO Kentucky DMS data. IPRO noted any issues with DMS-stored data while comparing the two data sources. Because of data and time limitations, matches on the two data sources using additional information given by MCOs such as provider NPIs, claim payments, or claim status were not included due to inconsistencies in MCO-submitted data. It should be noted that any matches made between MCO and DMS data for all three claim types are partial matches since comparisons were restricted to Medicaid ID, dates of service and pertinent claim codes.

Each claim type that was assessed had its own specific issues. On the whole, issues with dates of adjudication and services captured in DMS data have brought to light that additional edit checks may be necessary for the state to assess the cleanliness of MCO-submitted data in regards to adjudication or service dates. Given the analysis was performed in March/April 2016, claims may have been submitted to the state after the original comparisons, hence why IPRO found records in the current DMS data extracts. Additionally, since IPRO receives extracts of data from DMS, it may be possible that information is missing because it was filtered on the state side prior to transfer.

Overall percentages of MCO-submitted claim matches against DMS data extracts for ID, Date of Service, and primary procedure, NDC or diagnosis codes:

- Pharmacy: 89.76%
- Medical: 98.32 % (adjusted rate)
- Dental: 91.97%

Anthem BCBS Medicaid

As seen in MCO and DMS data across the three different claim types, Anthem BCBS Medicaid had the smallest volume of records amongst the MCOs.

Pharmacy Data

DMS pharmacy claims for Anthem BCBS Medicaid showed data issues with prescription dates (**Table 1A**); for some records, prescription dates exceeded the date of adjudication on the claim. Anthem BCBS Medicaid's submitted volume of claims was nearly half of what was captured in the DMS data, even though the frequency and pattern of claim volume per date matched DMS data (**Table 1B, Figure 1A**). A possible explanation for this may be that pharmacy claims are submitted multiple times due to adjustments or reversals; hence, why DMS data may be exaggerated in claim volume versus MCO-submitted data. As per **Table 1C**, Anthem BCBS Medicaid has timely submissions of its pharmacy claims within 30 days of adjudication (98.33%). In regards to the table comparisons between MCO and DMS data, Anthem BCBS Medicaid's rate of matched records was close to the overall rate across the five MCOs (**Table 1D, 87.44%**).

Dental Data

Anthem BCBS Medicaid submission of dental data was slightly higher in proportion to what was queried in the DMS data (**Table 2B: 4% vs. Table 2A: 3%**). **Figure 2A** showed that Anthem BCBS Medicaid's daily volume of claims exceeded what was found in the DMS data warehouse. Analysis of timeliness of claims submissions to DMS could not be conducted given that no adjudication dates were captured for Anthem BCBS Medicaid's dental data in DMS data warehouse. As for the comparisons made against the state data warehouse, 88.64% of Anthem BCBS Medicaid's submitted records had a match (**Table 2D**). Anthem BCBS Medicaid reviewed approximately 96.45% of its discrepant records, and indicated these all were submitted to the state but had been rejected due to DMS edit checks (**Table 2E, 4,438/4,601**).

Medical Data

Although the proportion of Anthem BCBS Medicaid's claims in the MCO-submitted data was similar to the proportion captured in DMS data, DMS data extracts had nearly two times the volume count of records than was submitted by Anthem BCBS Medicaid (**Table 3A, 3B**). Similar to Anthem BCBS Medicaid's dental data, adjudication dates were not captured by DMS for medical encounters. **Figure 3A** shows that the frequency and pattern of the daily volume of claims

is similar between the MCO and the state despite the volume difference per diem; however, towards the end of July 2015, there is a slight difference between the two entities. Because adjudication dates were incomplete in DMS data for Anthem BCBS Medicaid, lagging claims analysis could not be done. In regards to table comparisons, Anthem BCBS Medicaid had an adjusted match rate of 94.99% match rate to DMS data (**Table 3D**). Compared to other MCOs, Anthem BCBS Medicaid responded to the most discrepant records, and indicated that nearly 88% of their sampled discrepant data responses were “claims that were submitted to DMS.” Upon review of their records, only 6% of their records were found in DMS data as of August 1, 2016 (**Table 3E**).

CoventryCares

Pharmacy Data

Pharmacy claim volumes in DMS data for CoventryCares were slightly higher than the MCO-submitted data (**Table 1A, 1B**). **Figure 1B** (claim volumes per diem) displayed this difference in claim volume records. Of the five MCOs, CoventryCares had the timeliest submissions of claims after adjudication to the state (**Table 1C**, 99.72%). Comparing CoventryCares’s submitted claims to DMS data, about 87.15% of submitted claims matched (**Table 1D**). Of the sampled discrepant records with responses, 4.89% were not submitted due to errors or internal checks, about 20.28% are waiting on a response from the state, and 74.83% were successfully submitted to the state (**Table 1E**). IPRO did not find any of the claims that were “submitted to the state” when comparing against the latest DMS data on July 24, 2016.

Dental Data

The proportion of claims between the MCO-submitted data and DMS captured data and daily volumes of claims between the two data sources are similar (**Table 2A, Figure 2B**). 98.96% of CoventryCares’s records in the DMS data warehouse showed timely submissions of dental records (**Table 2C**). CoventryCares had the second highest rate of matches against the DMS data warehouse for dental claims, with a rate of 99.79% of its total submitted records (**Table 2D**). About 93% of the sampled discrepant record responses that fell into the category of “submitted to DMS.” IPRO found 3.4% (19/558) of those records were listed in the DMS data warehouse as of August 1, 2016 (**Table 2E**). These claims were submitted in the first or second quarter of 2015, prior to the adjudication study period of the EDV.

Medical Data

The proportion of claims for CoventryCares of the MCO total submitted data and the DMS data extract were similar, although volumes of claims captured in DMS were nearly twice that of the MCO-submitted data (**Table 3A and 3B, Figure 3B**). One issue that was seen was missing adjudication dates were listed as ‘01/01/1900’ in the DMS data extract. Of the five MCOs, CoventryCares had the timeliest submission of medical encounter data to the state, with 59.99% of its total records (**Table 3C**). As for table comparisons, CoventryCares originally had 99.09% of its records matched. For its sampled discrepancy record responses, CoventryCares indicated that 49.5% of its response claims were submitted to DMS, 28.71% were rejected by DMS, and 21.78% of its records were withheld from submission due to incorrect values or internal edit checks (**Table 3E**). IPRO verified that the 36 of the 50 claims that were “submitted to the state” were captured in the DMS data as of August 1, 2016 (**Table 3E**). The 36 records that matched were due to IPRO not including the Health Homes encounter data in the original DMS data extract file. Consequently, IPRO adjusted the rate of matched records for CoventryCares to 99.53%, which was the highest for the 5 MCOs (**Table 3D**).

Humana-CareSource

Pharmacy Data

Humana-CareSource’s Pharmacy claim proportions for MCO-submitted data and daily volume of claims were similar to the proportion and volume in the DMS data extract (**Table 1A, 1B, and Figure 1C**). An issue in the DMS data extract for Humana-CareSource was that a handful of records had dispense dates that exceeded the adjudication dates. With regard to timeliness of claims submissions, Humana-CareSource had 98.6% of its DMS data submitted within 30 days of adjudication (**Table 1C**). As for table comparisons, 87.22% (**Table 1D**) of pharmacy claims submitted by Humana-CareSource matched to what was in the DMS data extract. Of the 99 sampled discrepant record responses, 83.83% of responses indicated claims were withheld from state submission due to internal checks or claim reversals; the remaining responses either fell into the buckets of being successfully submitted to the state (IPRO did not find these seven records in the current data) or being rejected by the state (**Table 1E**).

Dental Data

Humana-CareSource's proportion in the MCO-submitted data and DMS data extract were similar, as were the daily volume of claims (**Table 2A, 2B, and Figure 2C**). However, as seen in MCOs such as Anthem BCBS Medicaid, adjudication dates were not captured for this MCO, and as such, lagging claims analysis could not be done for Humana-CareSource. Humana-CareSource had 99.54% of its submitted dental data matched to what was captured in the DMS data extracts (**Table 2D**). The 96 sampled discrepancy record responses were bucketed nearly evenly amongst the three categories of "submitted to DMS," "not submitted to DMS," and "rejected by DMS." Upon review of the latest DMS dental data, IPRO found 4 of the 26 records that were "submitted to DMS" in the latest dental data (**Table 2E**). These were submitted to DMS after the EDV analysis was conducted in April of 2016.

Medical Data

Humana-CareSource's medical data in the DMS extract was slightly higher in volume (aggregated and daily totals) but slightly lower in proportion compared to its MCO-submitted data (**Table 3A, 3B**). Adjudication dates were captured for Humana-CareSource in the sampled DMS data extract; however, the captured values are questionable given that Humana-CareSource had least timely submission of the five MCOs (**Table 3C, 18.9%**). Humana-CareSource's original rate of matched records was 83.84% (**Table 3D**). Humana-CareSource stated that 51% of its 100 discrepancy record responses were successfully submitted to the state (**Table 3E**). IPRO verified that 35 of those 51 records were found in the current DMS data extract, as a result of the missing Health Homes encounter table IPRO did not include in its original analysis. Upon discovery of the missing DMS data extract table, IPRO readjusted Humana-CareSource's matched record rate to 99.1% (**Table 3D, adjusted rate**) which was a significant increase from its original value of 83.84%.

Passport Health Plan

Pharmacy Data

Passport Health Plan had slightly higher volume of data in the DMS data extract than in the MCO submission, but proportions were not significantly different (**Table 1A, 1B, and Figure 1D**). Issues in the DMS data were incorrect values for prescription and dispense dates. 96.22% of Passport Health Plan's claims in the DMS data extract indicated the majority of claims are submitted within 30 days of adjudication (**Table 1C**). Of the five MCOs, Passport Health Plan had the highest matched records against the DMS data extract (**Table 1D, 99.61%**). Of the 100 sampled discrepancy records, Passport Health Plan claimed that all records were submitted to DMS, but IPRO could not find these records using the latest DMS pharmacy claims data (**Table 1E**).

Dental Data

Passport Health Plan had slightly higher proportion and volume of claims in the DMS data extract than in the total MCO-submitted data, but daily claim volume totals were a near match for the two data sources (**Table 2A, 2B and Figure 2D**). Approximately 99.15% of Passport Health Plan's claims in the DMS data extract were submitted within 30 days of adjudication (**Table 2C**). Of the five MCOs, Passport Health Plan had the highest rate of MCO-submitted data matched to DMS dental data (**Table 2D, 99.84%**). For the 463 sampled discrepancy responses, slightly more than half were bucketed under "claims were submitted to DMS" (**Table 2E, 53.35%**) and less than half were bucketed under "claim was not submitted" due to incorrect values or membership (**Table 2E, 46.22%**).

Medical Data

Passport Health Plan had a slightly higher volume of records in the DMS data extract than the MCO-submitted data, but had a slightly lower proportion of total records in the DMS data versus the proportion of total submitted MCO data (**Table 3A, 3B and Figure 3D**). 52.56 % of Passport Health Plan's DMS data was submitted within 30 days of adjudication (**Table 3C**). Originally, IPRO found 98.72% (**Table 3D**) of Passport Health Plan's submitted claims to match with the DMS data extract; when reviewing the 40% of sampled discrepancy record responses that were bucketed under "claims were submitted to DMS," IPRO found 28 out of 40 records were listed in the current DMS data due to IPRO not including the DMS Health Homes encounter data in the original data comparison (**Table 3E**). The adjusted rate of claim match was 99.07% (**Table 3D**).

Wellcare of KY

Pharmacy Data

Wellcare of KY had submitted slightly higher volume of pharmacy data than was captured in the DMS data extract, but daily volume of claims from July 1, 2015 to September 30, 2015 was similar (**Table 1A, 1B, and Figure 1E**). Of the five MCOs, Wellcare of KY had the lowest rate for timeliness of claims submissions to the state (**Table 1C**, 63.01%). 86.47% of Wellcare of KY's submitted data matched to the DMS data extract (**Table 1D**). Of the 99 sampled discrepancy responses, 98.98% indicated the records were not submitted to DMS due to incorrect membership or incorrect data (**Table 1E**).

Dental Data

Wellcare of KY submitted more data than was captured in the DMS data extract, and daily volume of claims for dates of service from July 2015 to September 2015 exceeded state totals (**Table 2A, 2B and Figure 2E**). Lagging claim analysis showed that 98.73% of adjudicated dental claims were submitted within 30 days (**Table 2C**). Of the five MCOs, Wellcare of KY had the lowest rate of matched records against the DMS data warehouse (**Table 2D**, 77.24%). About 98% of the sampled discrepancy record responses (100) indicate that the majority of Wellcare of KY's submitted data was not captured by the DMS data because Wellcare of KY had not submitted these due to incorrect membership or incorrect values (**Table 2E**).

Medical Data

Although proportions of Wellcare of KY's data in the MCO submission were close to the proportion in the DMS data extract, the volume of MCO-submitted claims was nearly half of the DMS data extract for the same time period (**Table 3A and 3B**). **Figure 3E** shows that the daily volume of claims for the DMS data was nearly twice of the MCO-submitted data. 58.19% of Wellcare of KY's claims were submitted to the state within 30 days of adjudication (**Table 3C**). 96.95% (**Table 3D**) of Wellcare of KY's submitted claims matched with the DMS data extract. About 72% of the sampled discrepancy record responses indicated that Wellcare of KY had not submitted these records due to internal edit checks, whereas 16% of the responses indicated these claims were "submitted to the state" (**Table 3E**). IPRO verified that all 16 records submitted to the state were indeed captured in the current DMS data. Of the 16 claims submitted to the state, 10 were submitted after the EDV analysis.

Overall Status of Comparisons

Table Comparisons

Passport Health Plan had the highest rates of claims matching against the DMS data extracts for pharmacy and dental data, whereas Wellcare of KY had the lowest rates of claims matching against the DMS data extracts for pharmacy and dental data. For medical data, Humana-CareSource had the highest rate of matched records after IPRO's adjustment to the DMS data extract table, and Anthem BCBS Medicaid had the lowest rate of matched records for medical data.

Timeliness of Claims

CoventryCares had the highest rate of records submitted within 30 days of adjudication to DMS for pharmacy and medical claims, and Passport Health Plan had the highest rate of claims submitted within 30 days of adjudication for dental claims data. Wellcare of KY had the lowest rate for claims submissions to DMS in 30 days after adjudication for pharmacy and dental data, and Humana-CareSource had the lowest rate for timeliness for medical data. Anthem BCBS Medicaid was not included in the analysis for timely submissions for dental and medical claims, and Humana-CareSource was not included for the analysis of timely submissions for dental claims due to missing adjudication dates in the DMS data extract tables.

Limitations

- **Missing Adjudication dates in DMS encounter data:** Pharmacy records were easy to compare between MCOs and DMS data, given that adjudication dates were captured in the state data warehouse. However, IPRO did not know that adjudication dates were incomplete or missing completely on the state side for medical and dental claims for some MCOs. This imposed some limitations for the analysis in regards to the lagging claims analysis and date frequency analysis.
- **Missing Dates of Service in DMS encounter data:** When running queries on DMS data, IPRO found that for certain records, missing dates of service are captured as '01/01/1900,' similar to missing adjudication dates. This could explain why matches could not be made between some MCOs and DMS.
- **Missing DMS encounter table in table comparison queries for Medical claims:** IPRO had mistakenly left out one encounter table from the DMS extracts which pertained to health homes. This impacted the rates of MCO data comparisons to DMS data. IPRO adjusted the rates of matching claims in **Table 3D** to account for this issue. Humana-CareSource's rate of match was significantly improved, but all other MCOs saw minimal improvement.
- **File layout specifications:** Approximately 75% of IPRO's analysis on the encounter data validation project dealt with discussing files layouts, cleaning up submitted data, and standardizing files from MCOs. Given the volume of claims for each encounter type and the different MCOs who provided the data, each file for medical, dental and pharmacy data had its own specific set of queries and checks to assess if MCOs had followed instructions. IPRO's takeaway from creating the file specifications is that more information and specifics are needed when providing data requests and file layouts to MCOs. Perhaps creating a FAQ sheet can help reduce time to standardize such large volumes of data for similar projects in the future.
- **Incorrect Medicaid IDs on the MCO-submitted files:** Even though checks were done for missing data on IDs, IPRO did not catch the few IDs that did not follow requested ID formats. Some MCOs had listed "UNKNOWN" or "MISSING" for Medicaid IDs. Others simply populated "0"s for the member IDs. Many of these seem to be listed to a newborn (based on date of birth or name listed as "BABY"). IPRO requests future advice from DMS on how to ask MCOs to list IDs for newborns who have no ID assigned or are listed under their mother's ID.
- **No MCO original claim numbers captured in DMS data:** With regard to the claim volume figures posted for **Figures 1, 2, and 3**, the frequency and pattern of claims submitted by MCOs matched what was captured on the DMS data, but the volume difference may have indicated that the same claims were captured in DMS data more than once. Due to time constraints, IPRO did not verify this assumption, but it would help for future analysis if DMS can capture MCO original claim numbers. This would help both IPRO and DMS to investigate questionable volumes of claims through encounter data validation or Early and Periodic Screening, Diagnostic, and Treatment (EPSDT) studies, and help MCOs pinpoint issues much quicker.

Recommendations

- IPRO recommends that DMS include MCO original claim numbers in DMS data to help investigation in future EPSDT or EDV studies.
- IPRO suggests that DMS review the list of discrepant records from IPRO to assess if these records are indeed not captured in the state MMIS, and review the responses provided by the MCOs to verify or rebut their assessments on the sampled discrepancy records.
- Several MCOs indicated they are waiting on a response from the state on certain claims months after submission (**Table 1E**). IPRO recommends the state follow up on these records to investigate why a response was not sent on the status of these claims.
- Given CMS efforts in capturing accurate encounter data from all participating Managed Care states through its transformed MSIS system (T-MSIS), it would benefit Kentucky DMS to review its data regularly and include data edit checks for date inconsistencies. For pharmacy data, some claims had adjudication dates prior to drug dispense and/or prescription dates. For medical data and dental data, missing dates of service and adjudication dates were present. Accurate capture of adjudication dates would benefit financial teams investigating claim payments and services rendered for conducting studies or setting capitation rates.

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Commonwealth of Kentucky
Department for Medicaid Services
Division of Program Quality and Outcomes

EPSDT Encounter Data Validation: Dental Services

FINAL REPORT
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Introduction and Background

Early and Periodic Screening, Diagnostic and Treatment (EPSDT) services is a federally mandated health program for Medicaid enrollees, which provides comprehensive and preventive health care services for children and adolescents up to age 21 years. EPSDT screening services include a comprehensive health and developmental history, comprehensive unclothed physical exam, appropriate immunizations according to the Advisory Committee on Immunization Practices, laboratory tests including lead toxicity screening, and health education that includes anticipatory guidance regarding child development, healthy lifestyles and accident and injury prevention.¹ In Kentucky, specific age-appropriate assessments of growth and development, vision, hearing and oral health are included in EPSDT screening services based on the American Academy of Pediatrics (AAP) periodicity schedule.² Diagnostic and treatment services for illnesses and conditions identified through EPSDT screening are also part of EPSDT services.

As per the Medicaid website of the Centers for Medicare and Medicaid (CMS), dental services are an important part of comprehensive services under EPSDT, and referral to a dentist is required consistent with Kentucky's periodicity schedule.³ Covered dental services include maintenance of dental health, restoration of teeth, relief of pain and infections, and services to address any conditions identified during screening. National studies have shown that not all eligible children receive all components of needed services.⁴ The receipt of recommended dental care is among the services noted to be lacking for publicly insured children in national health care utilization surveys, although there has been improvement over the past several years.^{5 6 7} These surveys revealed that the Kentucky rate of receipt of recommended preventive dental services (42.6%) and recommended dental treatment services (21.1%) were below the national median (47.5% and 22.8%, respectively) for these services.⁸

I PRO conducted studies to validate Kentucky Medicaid managed care (MMC) EPSDT visit codes in 2014 and 2015. The 2014 study revealed opportunity for improvement in the receipt of comprehensive EPSDT screenings during well-child visits, and oral health assessment was among the specific identified gaps in care. Although rates of oral health assessment during EPSDT visits showed significant improvement in 2015 over 2014 results (61% versus 50%, $P < 0.01$), there is still opportunity for improvement in this area, especially for adolescents, for whom only 52% had an oral health assessment documented. The 2015 study also identified continued opportunity for improvement in the rate of children and adolescents who were documented to be under the care of a dentist or had a referral to a dentist, with a rate of only 16%. Strikingly, 35% of all study sample members, and 44% of adolescents, had neither an assessment of oral health needs during their EPSDT visit nor a referral for dental care.

In order to support Kentucky's ongoing focus on oral health care in the Healthy Smiles Kentucky and other statewide initiatives ("Healthy Kentucky Smiles," 2006) these findings were explored in more detail to determine if dental services codes for comprehensive, periodic and limited dental exams as well as for preventive services and restorative dental treatments are documented in dental records.

Objectives

This study aims to validate EPSDT-related dental exam visit, preventative services and restorative treatment procedure claim codes by comparing dental record documentation and submitted dental encounter data for children enrolled in Kentucky MMC, and describe age-appropriate EPSDT dental services provided during dental visits. The specific objective is to investigate whether dental record documentation of dental visits identified by encounter data submission include documentation of dental exam components for a comprehensive, periodic or limited oral examination, as recommended by the American Academy of Pediatric Dentistry (AAPD) and in accordance with the Kentucky Medicaid Dental Periodicity Schedule, including: health history, chief complaint, oral exam components, caries risk assessment, behavior assessment, and dental health education that includes anticipatory guidance regarding nutrition, accident and injury prevention, and oral hygiene. The study also aims to assess whether dental record documentation supports claims

submitted for preventive services and restorative dental treatment procedures and the extent to which diagnostic and treatment services are planned for problems identified during EPSDT dental exams.

Methodology

Eligible Population

The eligible population from which a dental record sample was drawn includes Kentucky MMC-enrolled children who were six months through 20 years of age by September 30, 2015, and had one EPSDT-related dental exam visit during the study period of January 1, 2015 to September 30, 2015.

Scope of Review

A random sample of 600 MMC members was selected from the eligible population stratified by managed care organization (MCO) and age group. For each MCO, the eligible population was stratified into four age groups: ages 6 months–2 years (started 6 months of age through the end of second year by September 30, 2015; referred to as “infant and toddlers” from here on), ages 3–4 years (started third year through end of fourth year by September 30, 2015; referred to as “preschool children” from here on), ages 5–11 years (started fifth year through the end of 11th year by September 30, 2015; referred to as “school-aged children” from here on), and ages 12–20 years (started 12th year through the end of 20th year by September 30, 2015; referred to as “adolescents” from here on). The samples for each of the five MCOs, therefore, consisted of 120 enrollees; a total of 40 enrollees for the infants/toddlers and preschool children, 40 enrollees for the school-aged and 40 enrollees for the adolescent age groups including an oversample of 20 members per MCO. This sampling strategy provided for subgroups that were large enough to allow for statistical comparison, where indicated by frequencies, of the differing subgroups within the study sample.

Data Collection

A retrospective dental record review of eligible EPSDT-related dental exam visits during the measurement period January 1, 2015 to September 30, 2015 among members in the study sample was conducted. In order to ensure consistent samples across plans, eligible EPSDT-related dental visits were identified for members who had one dental exam date of service (DOS) during the review period. However, three study sample members had two exam claims submitted on the same exam DOS during the review period. All members therefore only had the dental record reviewed for the one exam DOS. The three members with two exam claims only had one of the submitted exam claims validated as detailed within the report in the relevant exam section. The following Current Dental Terminology (CDT) exam codes were submitted for the dental record review study sample: Comprehensive Oral Evaluation, CDT- D0150; Periodic Oral Exam, CDT-D0120; and Limited Oral Evaluation, CDT- D0140. All preventive services and restorative treatment procedure CDT claim codes submitted on the same date as the exam date of service (DOS) were reviewed for dental record documentation. The following preventive services and diagnostic and restorative treatment procedure claim codes were submitted for members on their exam DOS:

- Preventive Services (when submitted as a second code paired with an oral exam code)
 - § Dental Prophylaxis (CDTs-D1120 and D1110)
 - § Fluoride Treatment (CDTs-D1203, D1204, and D1208)
 - § Topical Fluoride Varnish (CDT- D1206)
 - § Oral Hygiene Instruction (CDT-D1330)
 - § Sealants (CDT-D1351-per tooth)
- Diagnostic and Restorative Dental Treatments (when submitted as a second code paired with an oral exam code)
 - § Diagnostic Imaging/X-rays (CDTs-D0210, D0220, D0230, D0270, D0272, D0274, and D0330)
 - § Extractions (CDTs-D7111, D7140, D7210, and D7240)
 - § Fillings (CDTs-D2140, D2150, D2160, D2330, D2332, D2335, D2391, D2392, and D2394)
 - § Crowns (CDT-D2930)
 - § Analgesia (CDTs-D9220 and D9230)
 - § Therapeutic Pulpotomy (CDT-D3220)

§ Pulp capping (CDT-D3110)

§ Palliative Treatment of Dental Pain (CDT-D9110)

Dental records for relevant exams during the review period were requested from the following MCOs: Anthem Blue Cross and Blue Shield (BCBS) Medicaid, CoventryCares of Kentucky (now operating as Aetna Better Health¹), Humana-CareSource, Passport Health Plan and WellCare of Kentucky.

All records were abstracted by IPRO nurse reviewers using an electronic tool containing all study indicators, including all oral exam components, routine preventive services and restorative treatments in accordance with The Kentucky Dental Periodicity Schedule and AADP guidelines.^{9 10} Documented dental abnormalities on the exam DOS with the action plan for each identified problem including plans for further testing/diagnostic procedures were also abstracted. Chief complaint and provider documentation of exam type were collected to assess coding practices for EPSDT dental exam visits.

Dental records were excluded if incomplete documentation was submitted for the exam DOS, or if the chart was illegible.

Demographic information for each member in the study sample was collected from the enrollment data housed in IPRO's data warehouse (administrative data) and pre-populated into the electronic review tool.

Dental Record Review

IPRO developed a dental record abstraction tool for the study in collaboration with the Kentucky Department for Medicaid Services (DMS). To help standardize the abstraction process, a record review tool and detailed instructions for each element, including requirements for indicator compliance, clear definitions for elements and likely location of the elements in the dental records were developed for the review. An electronic tool was created in Microsoft Access, with training provided for IPRO nurse reviewers. Each nurse reviewer achieved greater than 95% accuracy on test charts prior to beginning chart abstractions. Inter-rater reliability (IRR) testing was conducted to evaluate the performance of the nurse reviewers at the outset, and regular oversight was conducted throughout the review process through weekly over-reads of a minimum of 5% of reviewed charts. All nurse abstractor reviewers maintained a performance of at least 95% accuracy throughout the oversight process. The cumulative abstraction accuracy rate for the over-read was 99.7%.

Dental Record Disposition

Table 1 shows the overall disposition of records. Of the total of 600 charts requested, 586 charts were received. The final chart retrieval rate (97.7%) includes 574 valid charts that were reviewed and 12 charts that were excluded due to incomplete and/or illegible documentation for the exam DOS. Among the final study sample of 574 members, for whom the dental record was reviewed, 59 members (10%) were infants and toddlers, 131 members (23%) were preschool children, 190 members (33%) were school-aged children, and 194 members (34%) were adolescents.

¹ Aetna Better Health operated as CoventryCares Kentucky at the time the study sample was obtained.

Table 1: Overall Disposition of Records

Dental Records	Anthem BCBS Medicaid	Aetna Better Health	Humana-CareSource	Passport Health Plan	WellCare of Kentucky	Total
Records requested	120	120	120	120	120	600
Records received	112	118	118	120	118	586
Total retrieval rate	93.30%	98.30%	98.30%	100.00%	98.30%	97.70%
Infants and toddlers (ages 6 months–2 years)	11	10	13	13	12	59
Preschool children (ages 3–4 years)	29	30	26	27	27	139
School-aged children (ages 5–11 years)	35	38	40	40	39	192
Adolescents (ages 12–20 years)	37	40	39	40	40	196
Incomplete documentation for DOS ¹	7	0	1	0	4	12
Total excluded	7	0	1	0	4	12
Valid records received						
Final study sample	105	118	117	120	114	574
Infants and toddlers (ages 6 months–2 years)	11	10	13	13	12	59
Preschool children (ages 3–4 years)	23	30	26	27	25	131
School-aged children (ages 5–11 years)	35	38	40	40	37	190
Adolescents (ages 12–20 years)	36	40	38	40	40	194

¹ Excluded records had illegible or incomplete documentation, e.g., no provider notes, for the date of service DOS reviewed.
BCBS: Blue Cross and Blue Shield.

Results

Member Characteristics

Demographics and EPSDT Dental Coding

Overall, approximately one-third of the infants, toddlers, children and adolescents in the study were in each of the study age groups: 10.28% were infants and toddlers (59/574) and 22.82% were preschool children for a combined 33.10% (190/574), 33.10% (190/574) were school-aged children and 33.80% (194/574) were adolescents (Table 1, Table 2). The members' gender, race, residence and eligibility category were obtained from administrative data. Overall, 51.74% of the children and adolescents in the sample were female, and there were more female than male members in each age group (Table 2). Just over half of members in the sample were white (51.74%); 10.28% were black, 10.63% were reported as "other race," 6 members were Asian or Pacific Islander (1.05%), one member was American Indian or Alaskan Native (0.17%), and race was "not provided" for 26.13% of the members (Table 2).

Urban counties in Kentucky included Boone, Bourbon, Boyd, Bracken, Bullitt, Campbell, Christian, Clark, Daviess, Edmonson, Fayette, Gallatin, Grant, Greenup, Hancock, Hardin, Henderson, Henry, Jefferson, Jessamine, Kenton, Larue, McLean, Meade, Nelson, Oldham, Pendleton, Scott, Shelby, Simpson, Spencer, Trigg, Trimble, Warren, Webster and Woodford Counties, while the remaining counties were considered rural (DMS, personal communication, 2013; Table 2). Over half (53.83%) of the members in the study sample resided in an urban area, including 49.15% of infants and toddlers, 55.73% of preschool children, 53.16% of school-aged children, and 54.64% of adolescents. Overall, 46.16% of the members resided in a rural area; 31.18% resided in Appalachia, including 32.20% of infants and toddlers, 32.82% of preschool children, 28.42% of school-aged children and 32.47% of adolescents, while overall 14.98% resided in a non-Appalachian rural area, including 18.64% of infants and toddlers, 11.45% of preschool children, 18.42% of school-aged children and 12.89% of adolescents (Table 2).

Eligibility category was obtained from administrative data. There were 30 members, including one infant, 3 preschool children, 7 school-aged children and 19 adolescents with Supplemental Security Income (SSI; 5.23%) and 15 who were in foster care (2.61%; Table 2).

Primary language could not be determined from documentation in the majority (93.73%) of dental records; overall, 5.05% and 0.87% of records documented English and Spanish, respectively, and 2 members (0.35%) documented "other" as the member's primary language (Table 2).

Documentation Characteristics

The majority (67.07%) of the dental records, overall, as well as for each age group in the study sample, were electronic dental records (Table 2).

Table 2: Demographics by Age Group

Demographics	Infants and Toddlers (n = 59)		Preschool Children (n = 131)		School-Aged Children (n = 190)		Adolescents (n = 194)		Total (n = 574)	
MCO	59	10.28%	131	22.82%	190	33.10%	194	33.80%	574	100.00%
Aetna Better Health	10	16.95%	30	22.90%	38	20.00%	40	20.62%	118	20.56%
Anthem BCBS Medicaid	11	18.64%	23	17.56%	35	18.42%	36	18.56%	105	18.29%
Humana-CareSource	13	22.03%	26	19.85%	40	21.05%	38	19.59%	117	20.38%
Passport Health Plan	13	22.03%	27	20.61%	40	21.05%	40	20.62%	120	20.91%
WellCare of Kentucky	12	20.34%	25	19.08%	37	19.47%	40	20.62%	114	19.86%
Gender										
Female	30	50.85%	66	50.38%	103	54.21%	98	50.52%	297	51.74%
Male	29	49.15%	65	49.62%	87	45.79%	96	49.48%	277	48.26%
Race/Ethnicity										
American Indian or Alaskan Native	0	0.00%	0	0.00%	0	0.00%	1	0.52%	1	0.17%
Asian or Pacific Islander	0	0.00%	1	0.76%	3	1.58%	2	1.03%	6	1.05%
Black	6	10.17%	12	9.16%	21	11.05%	20	10.31%	59	10.28%
Hispanic	0	0%	0	0%	0	0%	0	0%	0	0%
Not Provided	17	28.81%	44	33.59%	41	21.58%	48	24.74%	150	26.13%
Other race or ethnicity	8	13.56%	12	9.16%	22	11.58%	19	9.79%	61	10.63%
Unable to determine	0	0%	0	0%	0	0%	0	0%	0%	0%
White	28	47.46%	62	47.33%	103	54.21%	104	53.61%	297	51.74%
Region¹										
Urban	29	49.15%	73	55.73%	101	53.16%	106	54.64%	309	53.83%
Rural, Appalachian	19	32.20%	43	32.82%	54	28.42%	63	32.47%	179	31.18%
Rural, non-Appalachian	11	18.64%	15	11.45%	35	18.42%	25	12.89%	86	14.98%
Eligibility category										
Supplemental Security Income (SSI)	1	1.69%	3	2.29%	7	3.68%	19	9.79%	30	5.23%
Foster care	0	0.00%	1	0.76%	5	2.63%	9	4.64%	15	2.61%
Primary language										
English	7	11.86%	6	4.58%	7	3.68%	9	4.64%	29	5.05%
Spanish	1	1.69%	2	1.53%	2	1.05%	0	0.00%	5	0.87%
Other	1	1.69%	1	0.76%	0	0.00%	0	0.00%	2	0.35%
Unable to determine	50	84.75%	122	93.13%	181	95.26%	185	95.36%	538	93.73%

Demographics	Infants and Toddlers (n = 59)		Preschool Children (n = 131)		School-Aged Children (n = 190)		Adolescents (n = 194)		Total (n = 574)	
Medical record type										
Electronic	42	71.19%	90	68.70%	140	73.68%	113	58.25%	385	67.07%
Paper	17	28.81%	41	31.30%	50	26.32%	81	41.75%	189	32.93%

¹ Urban counties include: Boone, Bourbon, Boyd, Bracken, Bullitt, Campbell, Christian, Clark, Daviess, Edmonson, Fayette, Gallatin, Grant, Greenup, Hancock, Hardin, Henderson, Henry, Jefferson, Jessamine, Kenton, Larue, McLean, Meade, Nelson, Oldham, Pendleton, Scott, Shelby, Simpson, Spencer, Trigg, Trimble, Warren, Webster, and Woodford Counties. All other counties were designated as rural.

BCBS: Blue Cross and Blue Shield.

EPSDT-Related Service Claims by Code and by Age Group

It should be noted that the Kentucky DMS Dental Fee Schedule was revised and updated since the study sample was obtained, so that some of the exam and preventive services claim codes that were in effect for the study sample, are different from those now listed on the currently effective DMS Dental Fee Schedule. The changes will be detailed in the relevant sections that follow. Additionally, it should be noted that for some services and procedures codes, e.g., fillings and x-rays, members had more than one claim submitted so that the number of claims presented in Table 3 represent the maximum percent of study sample members with the claim submitted (Table 3).

Oral Exams

All of the members in the dental record review sample had one dental exam DOS with an exam claim (CDT codes: Comprehensive Oral Evaluation, D0150; Periodic Oral Exam, D0120; Limited Oral Evaluation, D0140) submitted during the review period. All preventive services and diagnostic and restorative treatment procedure claims submitted for the dental exam indicator DOS were reviewed for validation of dental record documentation. Overall, among the final study sample, 81.18% (466/574) of members had a Comprehensive Oral Evaluation claim submitted (Table 3), including 97.14% of Anthem BCBS Medicaid, 92.37% of Aetna Better Health/CoventryCares of Kentucky, 67.52% of Humana-CareSource, 53.33% of Passport Health Plan, and 98.25% of WellCare of Kentucky members.² Overall, 15.85% of study sample members had a Periodic Oral Exam claim submitted, including 1.90% of Anthem BCBS Medicaid, 3.39% of Aetna Better Health/CoventryCares of Kentucky, 27.35% of Humana-CareSource, and 44.17% of Passport Health Plan members; none of the WellCare of Kentucky study sample members had a Periodic Oral Exam claim code submitted. Overall, 3.48% of members had an exam claim submitted for a Limited Oral Evaluation, including 0.95% of Anthem BCBS Medicaid, 5.08% of Aetna Better Health/CoventryCares of Kentucky, 5.13% of Humana-CareSource, 4.17% of Passport Health Plan, and 1.75% of WellCare of Kentucky members (Table 3).

Preventive Services

Prophylaxis

There are two claim codes on the current Kentucky DMS Dental Fee Schedule³ as well as on the Schedule in effect for the claims under review for prophylaxis—generally referred to as “cleaning”—Child Prophylaxis (CDT-D1120) for prophylaxis services to children age 13 and younger and Adult Prophylaxis (CDT-D1110) for services for adolescents over age 14. Overall, the majority of members had a claim code for dental prophylaxis (521/574) submitted on the exam DOS, and most members (73.17%) had a Child Prophylaxis (CDT-D1120) claim, while 17.60% of members had an Adult Prophylaxis (CDT-D1110) claim submitted on the exam DOS, including 68.57% and 20.95% of Anthem BCBS Medicaid members; 76.27% and 16.95% of Aetna Better Health/CoventryCares of Kentucky; 73.50% and 13.68% of Humana-CareSource; 76.67% and 18.33% of Passport Health Plan; and 70.18% and 18.42% of WellCare of Kentucky members, for child and adult prophylaxis, respectively.

Fluoride Application Treatments

² Three members (IPRO IDs C95, P249, and P314) had both a Comprehensive Oral Evaluation claim (CDT-D0150) and a Periodic Oral Exam claim (CDT-D0120) submitted on the same exam DOS; claims data from the IPRO data warehouse show for the Coventry/Aetna member, the former exam claim was paid and for both Passport members the latter exam claims were paid. Therefore, these MCO's exam claims percentages as well as total exam claims percentages are greater than 100%.

³ Both the current (effective date February 5, 2016) and previous (effective April 1, 2009 and ongoing including the time of the claims under review) Kentucky DMS Dental Fee Schedules indicate that the “child prophylaxis” claim code (CDT-D1120) should be used for children of age 13 years and younger while the “adult prophylaxis” claim code D1110 should be used for adolescents of age 14 years and older. Both fee schedules are available at: <http://chfs.ky.gov/dms/dental+rates.htm>; <http://chfs.ky.gov/NR/rdonlyres/D17764C7-8FFD-4585-B7ED-5D09ADDF4D5B/0/December2015DentalFeeScheduleEffective252016.pdf>; downloaded on 7/20/2016.

The Kentucky DMS Dental Fee Schedule in effect for the claims under review only lists one claim code (CDT-D1203) for Topical Application of Fluoride for all members under the age of 21, whereas the current Kentucky DMS Dental Fee Schedule lists two claim codes for the Topical Application of Fluoride (CDT-D1208, which in most CDT manuals includes “Excluding Varnish” in the code description), and for Fluoride Varnish (CDT-D1206) for all members under age 21.⁴ The Topical Application of Fluoride Adult (CDT- D1204) is not on either DMS Fee Schedule. Overall, the majority (82.40%) of members had a claim for a fluoride treatment submitted on the exam DOS, and most frequently, members had a claim for Topical Fluoride Application Excluding Varnish (CDT-D1208), including 74.29% of Anthem BCBS Medicaid, 83.90% of Aetna Better Health/CoventryCares of Kentucky, 79.49% of Humana-CareSource, 83.33% of Passport Health Plan, and 79.82% of WellCare of Kentucky members. In total 6 members had a claim submitted (1.05%) for Fluoride Varnish (CDT-D1206), 5 members had claims (0.87%) for Topical Application of Fluoride Child (CDT-D1203) and one member had a claim (0.17%) for Topical Application of Fluoride Adult (CDT-D1204).

Oral Hygiene Instruction

Only five members overall (0.87%) had a claim submitted for Oral Hygiene Instruction (CDT-D1330)—one Aetna Better Health/CoventryCares of Kentucky member, and four Humana-CareSource members (Table 3).

Sealants

The current Kentucky DMS Dental Fee Schedule, as well as the schedule in effect for the claims under review, list one Sealant (CDT-D1351) claim code that should be submitted for each tooth treated, for children ages 5 to 20 years and most members with a sealant claim had more than one sealant claim submitted. Overall 99 sealant claims were submitted on the exam DOS, including 17 claims for Anthem BCBS Medicaid, 24 claims for Aetna Better Health/CoventryCares of Kentucky, 27 claims for Humana-CareSource, 17 claims for Passport Health Plan, and 14 claims for WellCare of Kentucky.

Diagnostic and Restorative Procedures

Diagnostic Imaging (x-rays)

The current Kentucky Medicaid Dental Fee Schedule, as well as the Schedule in effect for the claims under review, provide seven claim codes for diagnostic imaging, commonly known as x-rays, specifically indicating the location and number of images: Intraoral Complete Series (CDT-D0210), Periapical First Film (CDT-D0220) and Intraoral Periapical, each additional (CDT-D0230); Bitewing Single Image (CDT-D0270); Dental Bitewings Two Images (CDT-D0272); Bitewings Four Images (CDT-D0274); and Panoramic Image (CDT-D0330; Table 3). A total of 669 diagnostic imaging claims were submitted for study sample members, and some members with an x-ray claim had more than one type of claim code submitted.

In total, only 4 members had a claim for an Intraoral Complete Series (CDT-D0210), including one member at each of the following plans: Anthem BCBS Medicaid, Aetna Better Health/CoventryCares of Kentucky, Passport Health Plan, and WellCare of Kentucky. In total, 123 claims were submitted for Periapical First Film (CDT-D0220), and 101 claims for Intraoral Periapical, each additional (CDT-D0230), which includes up to 9.52% and 2.86%, of Anthem BCBS Medicaid members (some members had more than one of these x-ray claims), up to 22.88% and 22.03%, of Aetna Better Health/CoventryCares of Kentucky members, up to 34.19% and 32.48%, of Humana-CareSource members, up to 16.67%

⁴ The Kentucky DMS Dental Fee Schedule in effect for the claims under review only indicates one claim code (D1203) for Topical Application of Fluoride for all members under the age of 21, whereas the current Kentucky Fee Schedule indicates two claim codes for the Topical Application of Fluoride, Excluding Varnish (CDT-D1208) and Fluoride Varnish (CDT-D1206) for all members under age 21. Both fee schedules are available at: <http://chfs.ky.gov/dms/dental+rates.htm>; <http://chfs.ky.gov/NR/rdonlyres/D17764C7-8FFD-4585-B7ED-5D09ADDF4D5B/0/December2015DentalFeeScheduleEffective252016.pdf>; downloaded on 7/20/2016.

and 13.33%, of Passport Health Plan members, and up to 22.81% and 15.79% of WellCare of Kentucky members, respectively (Table 3).

Only one WellCare of Kentucky member had a claim code submitted for a Bitewing Single Image (CDT-D0270). By type, Dental Bitewings Two Images was the most frequently submitted x-ray claim (CDT-D0272) with 206 claims in total, including up to 33.33% of Anthem BCBS Medicaid, up to 34.75% of Aetna Better Health/CoventryCares of Kentucky, up to 37.61% of Humana-CareSource, up to 34.17% of Passport Health Plan, and up to 39.47% of WellCare of Kentucky members. A total of 91 Bitewings Four Images (CDT-D0274) claims were submitted for up to 15.85% of members overall: 18.10% of Anthem BCBS Medicaid, 16.10% of Aetna Better Health/CoventryCares of Kentucky, 18.80% of Humana-CareSource, 15.00% of Passport Health Plan, and 11.40% of WellCare of Kentucky members (Table 3).

Overall, 143 Panoramic Image (CDT-D0330) claims were submitted, including 26.67% of Anthem BCBS Medicaid, 27.12% of Aetna Better Health/CoventryCares of Kentucky, 22.22% of Humana-CareSource, 27.50% of Passport Health Plan, and 21.05% of WellCare of Kentucky members (Table 3).

Fillings

The current Kentucky Dental Fee Schedule, as well as the Schedule in effect for the claims under review list a total of twelve claim codes for fillings, specific to the filling material (amalgam or resin) and number of surfaces treated on each tooth; additionally, resin-based claim codes note the location of the tooth (anterior/posterior), while amalgam claims note whether the tooth was primary or permanent. In total, 46 fillings claims were submitted on the exam DOS. In total, 46 fillings claims were submitted for study sample members, and because some members had more than one filling claim this represents a maximum of up to 8.01% of all study sample members with a filling claim. Overall, only four claims for Amalgam One Surface (CDT-D2140) were submitted on the exam DOS: one for Anthem BCBS Medicaid, two for Aetna Better Health/CoventryCares of Kentucky, and one for Humana-CareSource; none were submitted for Passport Health Plan or WellCare of Kentucky. Only one claim was submitted for Amalgam Two Surfaces Permanent (CDT-D2150) and for Amalgam Three Surfaces Permanent (CDT-D2160) for Anthem BCBS Medicaid.

Overall, Humana-CareSource and WellCare of Kentucky each had two claims submitted for Resin –Based Composite, One Surface Anterior (CDT-D2330). Only Aetna Better Health had one claim code submitted for Resin Three Surface Anterior (CDT-D2332). Aetna Better Health had six claims, and WellCare of Kentucky had one claim codes for Resin–Based Composite, > Four Surfaces Anterior, with Incisor (CDT-D2335) submitted. A total of 21 claim codes were submitted for Resin–Based Composite, One Surface Posterior (CDT-D2391): 7 for Anthem BCBS Medicaid, 3 for Aetna Better Health/CoventryCares of Kentucky, 5 for Humana-CareSource, and 6 for Passport Health Plan; this claim code was not submitted for any WellCare of Kentucky members. A total of six claims were submitted for Resin–based Composite, Two Surfaces Posterior (CDT-D2392); two claims each were submitted for Anthem BCBS Medicaid, Humana-CareSource, and Passport Health Plan. Only Anthem BCBS had one claim submitted for Resin Composite Posterior >4 Surfaces Posterior (CDT-D2394).

Crowns

The current Kentucky DMS Dental Fee Schedule, as well as the schedule in effect for the claims under review, list three claim codes for restorative crowns, specific to the material and whether the tooth treated was permanent or primary. In total, Anthem BCBS Medicaid had one and Humana-CareSource had three claim codes submitted for Prefabricated, Stainless Steel Crown (CDT-D2930).

Pulp Procedures

Passport Health had two claims submitted for Pulp Capping (CDT-D3110); Anthem BCBS Medicaid and Humana-CareSource each had one claim submitted for a Therapeutic Pulpotomy (CDT-D3220).

Extractions

In total, 23 claims were submitted for the various types of extraction procedures. A total of five claims were submitted for Extraction of Coronal Remnants (CDT-D7111): one claim for Aetna Better Health and two claims each for Humana-CareSource and WellCare of Kentucky. For Extraction of Erupted Tooth (CDT-D7140), a total of 12 claims were submitted: one claim each for Anthem BCBS and Humana-CareSource, 2 claims each for Passport Health Plan and WellCare of Kentucky, and 6 claims for Aetna Better Health. Humana-CareSource is the only Plan with 2 claims submitted for Removal of Impacted Tooth with Mucoper Flap (CDT-D7210) as well as with the 4 claims submitted for Impacted Tooth Removal Completely Bony (CDT-D7240).

Pain Management

Aetna Better Health and Humana-CareSource each had one claim submitted for Treatment of Minor Dental Pain (CDT-D9110) and General Anesthesia (CDT-D9220), respectively. Aetna Better Health had four claims, and Humana-CareSource had three claims submitted for Analgesia (CDT-D9230).

Table 3: Frequency of EPSDT-Related Dental Service Claims by CDT Code and by MCO as a Percent of Study Sample Members

EPSDT-Related Service Claims	Anthem BCBS Medicaid (n = 105) 18.29%		Aetna Better Health (n = 118 ¹) 20.56%		Humana-CareSource (n = 117) 20.38%		Passport Health Plan (n = 120 ¹) 20.91%		WellCare of Kentucky (n = 114) 19.86%		Total (n = 574) ¹	
Oral exams¹												
D0150-Comprehensive Oral Evaluation	102	97.14%	109	92.37%	79	67.52%	64	53.33%	112	98.25%	466	81.18%
D0120-Periodic Oral Exam	2	1.90%	4	3.39%	32	27.35%	53	44.17%	0	0.00%	91	15.85%
D0140-Limited Oral Evaluation	1	0.95%	6	5.08%	6	5.13%	5	4.17%	2	1.75%	20	3.48%
Preventive services												
Dental prophylaxis												
D1120-Prophylaxis Child	72	68.57%	90	76.27%	86	73.50%	92	76.67%	80	70.18%	420	73.17%
D1110-Prophylaxis Adult	22	20.95%	20	16.95%	16	13.68%	22	18.33%	21	18.42%	101	17.60%
Prophylaxis total	94	89.52%	110	93.22%	102	87.18%	114	95.00%	101	88.60%	521	90.77%
Fluoride treatment												
D1203 Topical App. Fluoride Child (under age 21)	3	2.86%	0	0.00%	2	1.71%	0	0.00%	0	0.00%	5	0.87%
D1204 Topical App. Fluoride Adult (age 21 and older)	0	0.00%	0	0.00%	0	0.00%	1	0.83%	0	0.00%	1	0.17%
D1208 Topical App. Fluoride (Exc. Varnish)	78	74.29%	99	83.90%	93	79.49%	100	83.33%	91	79.82%	461	80.31%
D1206 Topical Fluoride Varnish	3	2.86%	0	0.00%	0	0.00%	3	2.50%	0	0.00%	6	1.05%
Fluoride treatment total	84	80.00%	99	83.90%	95	81.20%	104	86.67%	91	79.82%	473	82.40%
Oral Hygiene Instruction												
D1330 Oral Hygiene Instruction	0	0.00%	1	0.85%	4	3.42%	0	0.00%	0	0.00%	5	0.87%
Sealants												
D1351-Per Tooth	17	16.19%	24	20.34%	27	23.08%	17	14.17%	14	12.28%	99	17.25%
Diagnostic and restorative procedures												
Diagnostic imaging (x-ray)												
D0210 Intraoral Complete Film Series (Including Bitewings)	1	0.95%	1	0.85%	0	0.00%	1	0.83%	1	0.88%	4	0.70%
D0220 Intraoral Periapical First (First Film)	10	9.52%	27	22.88%	40	34.19%	20	16.67%	26	22.81%	123	21.43%
D0230 Intraoral Periapical, each additional	3	2.86%	26	22.03%	38	32.48%	16	13.33%	18	15.79%	101	17.60%

EPSTD-Related Service Claims	Anthem BCBS Medicaid (n = 105) 18.29%		Aetna Better Health (n = 118 ¹) 20.56%		Humana-CareSource (n = 117) 20.38%		Passport Health Plan (n = 120 ¹) 20.91%		WellCare of Kentucky (n = 114) 19.86%		Total (n = 574) ¹	
D0270 Dental Bitewing Single Image	0	0.00%	0	0.00%	0	0.00%	0	0.00%	1	0.88%	1	0.17%
D0272 Dental Bitewing Two Images	35	33.33%	41	34.75%	44	37.61%	41	34.17%	45	39.47%	206	35.89%
D0274 Bitewings Four Images	19	18.10%	19	16.10%	22	18.80%	18	15.00%	13	11.40%	91	15.85%
D0330 Panoramic Image	28	26.67%	32	27.12%	26	22.22%	33	27.50%	24	21.05%	143	24.91%
Total Diagnostic imaging (x-ray)	96	91.43%	146	123.73%	170	145.30%	129	107.50%	128	112.28%	669	116.55%
Fillings												
D2140 Amalgam One Surface Permanent	1	0.95%	2	1.69%	1	0.85%	0	0.00%	0	0.00%	4	0.70%
D2150 Amalgam Two Surfaces Permanent	1	0.95%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	1	0.17%
D2160 Amalgam Three Surfaces Permanent	1	0.95%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	1	0.17%
D2330 Resin-based Composite, One Surface, Anterior	0	0.00%	0	0.00%	2	1.71%	0	0.00%	2	1.75%	4	0.70%
D2332 Resin Composite, Three Surfaces, Anterior	0	0.00%	1	0.85%	0	0.00%	0	0.00%	0	0.00%	1	0.17%
D2335 Resin, 4/> Surfaces, or with incisor, Anterior	0	0.00%	6	5.08%	0	0.00%	0	0.00%	1	0.88%	7	1.22%
D2391 Resin Composite, One Surface, Posterior	7	6.67%	3	2.54%	5	4.27%	6	5.00%	0	0.00%	21	3.66%
D2392 Resin, Two Surfaces, Posterior	2	1.90%	0	0.00%	2	1.71%	2	1.67%	0	0.00%	6	1.05%
D2394 Resin, ≥ 4Surfaces, Posterior	1	0.95%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	1	0.17%
Total Fillings	13	12.38%	12	10.17%	10	8.55%	8	6.67%	3	2.63%	46	8.01%
Crowns												
D2930 Prefabricated, Stainless Steel Crown	1	0.95%	0	0.00%	3	2.56%	0	0.00%	0	0.00%	4	0.70%
Pulp procedures												
D3110 Pulp Capping	0	0.00%	0	0.00%	0	0.00%	2	1.67%	0	0.00%	2	0.35%
D3220 Therapeutic Pulpotomy	1	0.95%	0	0.00%	1	0.85%	0	0.00%	0	0.00%	2	0.35%
Extractions												
							23		4.01%			
D7111 Extraction Coronal Remnants	0	0.00%	1	0.85%	2	1.71%	0	0.00%	2	1.75%	5	0.87%
D7140 Extraction Erupted Tooth	1	0.95%	6	5.08%	1	0.85%	2	1.67%	2	1.75%	12	2.09%

EPSDT-Related Service Claims	Anthem BCBS Medicaid (n = 105) 18.29%		Aetna Better Health (n = 118 ¹) 20.56%		Humana-CareSource (n = 117) 20.38%		Passport Health Plan (n = 120 ¹) 20.91%		WellCare of Kentucky (n = 114) 19.86%		Total (n = 574) ¹	
D7210 Removal Impacted Tooth with Mucoper Flap	0	0.00%	0	0.00%	2	1.71%	0	0.00%	0	0.00%	2	0.35%
D7240 Impacted Tooth Remove Completely Bony	0	0.00%	0	0.00%	4	3.42%	0	0.00%	0	0.00%	4	0.70%
Total Extractions	1	0.95%	7	5.93%	9	7.69%	2	1.67%	4	3.51%	23	4.01%
Pain management												
D9110 Treatment Dental Pain, Minor Procedure	0	0.00%	1	0.85%	0	0.00%	0	0.00%	0	0.00%	1	0.17%
D9220 General Anesthesia	0	0.00%	0	0.00%	1	0.85%	0	0.00%	0	0.00%	1	0.17%
D9230 Analgesia	0	0.00%	4	3.39%	3	2.56%	0	0.00%	0	0.00%	7	1.22%

¹ Three members (IPRO IDs C95, P249, and P314) had both a Comprehensive Oral Evaluation claim (CDT-D0150) and a Periodic Oral Exam claim (CDT-D0120) submitted on the same exam DOS; for the Coventry/Aetna member, the Comprehensive exam claim was paid and for both Passport members the Periodic exam claims were paid. Therefore, these Plans' exam claims and total exam claims percentages are greater than 100%. It should be noted that for some services and procedures code, e.g., fillings, members had more than one claim submitted so that the percentages shown represent the maximum number of members with the claim submitted.
CDT: Current Dental Terminology; MCO: managed care organization; BCBS: Blue Cross and Blue Shield.

Study Indicator Frequencies and EPSDT-Related Code Validation

This EPSDT dental services encounter data validation study focuses on dental provider oral evaluations and examinations (comprehensive, periodic, and limited), preventive services (prophylaxis, fluoride, sealants and oral hygiene instruction) and diagnostic and restorative dental procedures (x-rays, fillings, crowns, pulp procedures, extractions, and pain management). The frequencies of each type of service evaluated by the age of the study population and CDT code usage are presented below.

Oral Evaluation and Exam Claim Code Type by Age Group

In Kentucky, specific age-appropriate EPSDT dental services are based on the AAP periodicity schedule (“Kentucky: Cabinet for Health and Family Services – EPSDT,” 2015). All of the reviewed dental records had a claim submitted for one oral exam (CDTs: D0150-comprehensive, D0120-periodic, or D0140-limited), and all the infant, toddler, children and adolescent dental records were reviewed for AAP recommended components of each exam type, as informed by AAPD clinical practice guidelines and recommendations. The dental record review results are presented by the exam code submitted for each member with the preventive services and restorative procedure claims submitted for those members on the exam DOS presented in a table following each exam type table. The majority (81.18%) of members had a Comprehensive Oral Evaluation (CDT-D0150) claim submitted (Table 4; procedures for these members are presented in Table 5); 15.85% had a Periodic Oral Exam (CDT-D0140) claim submitted (Table 6, procedure codes submitted for these members are presented in Table 7); and 3.48% had Limited Oral Evaluation (CDT-D0120) claim submitted (Table 8, procedure codes submitted for these members are presented in Table 9).⁵

Oral Exam Type/Comprehensive Oral Evaluation by Age Group

The AAPD recommends a dental exam every six months; a comprehensive oral dental exam is recommended when visiting a new provider, or if there is a major change in health history since the most recent visit, otherwise a periodic exam could be one of the bi-annual visits. The AAPD⁶ recommends that during a comprehensive oral exam, a complete health history (including for example, past medical, family, and social histories) be reviewed, a chief complaint, i.e., the reason for the exam, noted, a visual examination of the oral cavity with documentation of relevant clinical components (including, for example, the color, form or number of teeth), as well as assessments be conducted for caries risk, fluoride sources, and behavior, and that anticipatory guidance for nutrition, safety and oral hygiene be provided (Table 4). Additionally, prophylaxis and fluoride treatments are recommended preventive services that should occur during a comprehensive exam.

Overall, 81.18% (466/574) of members in the final study sample had a claim code submitted for a Comprehensive Oral Evaluation (CDT-D0150). In less than half (45.28%) of the dental records for these members, the exam was specifically identified in the documentation by the provider as a comprehensive exam; a general statement for “exam” was frequently documented. The large majority of dental records among members with a comprehensive exam overall (88.41%), as well as by age, had documentation of an extraoral/oral cavity exam, including 94.23% of infant and toddlers, 88.29% of preschool children, 86.84% of school-aged children and 88.08% of adolescents.

⁵ Total exam claims as a percent of study sample members (comprehensive-81.18%; periodic-15.85%, and limited-3.48%; total exams-100.51%) is greater than 100% because 3 members had both a comprehensive and periodic exam claim submitted on the same exam DOS. Only one claim was paid for each member, and exam components in the dental record were validated for each member for one of the exam claims.

⁶ American Academy of Pediatric Dentistry, Guideline on Periodicity of Examination, Preventive Dental Services, Anticipatory Guidance/Counseling and Oral Treatment for Infants, Children and Adolescents, V.37 NO6. Available at: http://www.aapd.org/media/Policies_Guidelines/G_Periodicity.pdf. Downloaded on 6/29/2016.

Among these members for whom a Comprehensive Oral Evaluation (CDT-D0150) claim was submitted, the following comprehensive exam components as recommended by the AADP^{7,8} were documented in the dental record:

Health History

Overall, approximately 90% of members with a comprehensive exam code submitted had at least one component of health history documented in the dental record, including medical history reviewed (73.18%), positive medical issue, i.e., a notation for example of asthma or other medical condition (13.09%), hospitalization/surgery history (21.46%), immunization status (6.01%), allergy status (47.85%), medication status (43.56%), antibiotic prophylaxis status (3.43%), tobacco use assessment (12.02%) and positive tobacco use (0.86% overall, and 2.65% among adolescents) and past dental history (23.18%). The Kentucky EPSDT Periodicity table, in accordance with AAP/AADP recommendations, calls for the establishment of a dental home, i.e., establishment of an ongoing relationship with a dentist, or usual source of care, for comprehensive and coordinated dental care by 12 months of age. Overall, 62.88% of members with a comprehensive exam had dental record documentation of the provider assessing whether they had a dental home or a usual source of care, for example by indicating “recall” visit; 0.21% of members with a comprehensive exam claim had dental record documentation indicating that the member did not have a usual source of care or a dental home.⁹

Chief Complaint

Overall, 80.26% and 79.18% of members with a comprehensive exam code submitted had “exam” and “cleaning/prophylaxis” documented in the dental record as the chief complaint (most members had more than one reason for the visit documented), including 76.92% and 75.00% of infants and toddlers, 83.78% and 84.68% of preschool children, 75.66% and 75.00% of school-aged children, and 83.44% and 80.79% of adolescents, respectively. In total, less than 5% of members did not have the reason for the visit documented and for less than 2% of members the documented chief complaint was “none.”

Clinical Exam Components

Overall (85.84%), as well as for each age group, the most frequently documented clinical exam component was a notation related to dentition—noting either color, form, number or condition (caries/decay) of teeth. In total, 10.52% of members did not have any clinical exam components documented in the dental record, including 7.69% of infants and toddlers, 9.01% of preschool children, 12.50% of school-aged children, and 10.60% of adolescents.

Caries Risk Assessment¹⁰

The AAPD recommends that all children and adolescents have a caries risk assessment during a dental visit, with a determination of risk level so that management can be tailored to the level of risk. The AADP recommends that a caries risk assessment include an assessment and documentation of the elements that create a risk for developing caries. These elements are categorized as: “biological”—e.g., the child has high sugar consumption; “protective”—e.g., the child has a non-fluoridated water source; and “clinical findings”—e.g., the provider has noted during an exam that the child has plaque on teeth. In addition to noting specific risks, a determination as to the level of caries risk—low, moderate,

⁷ American Academy of Pediatric Dentistry, Guideline on Periodicity of Examination, Preventive Dental Services, Anticipatory Guidance/Counseling and Oral Treatment for Infants, Children and Adolescents, V.37 NO6. Available at: http://www.aapd.org/media/Policies_Guidelines/G_Periodicity.pdf. Downloaded on 6/29/2016.

⁸ American Academy of Pediatric Dentistry, Guideline on Record Keeping, V. 37 NO. 6. Available at: http://www.aapd.org/media/Policies_Guidelines/G_Recordkeeping.pdf. Downloaded on 6/29/2016.

⁹ American Academy of Pediatric Dentistry, Guidelines on Definition of Dental Home, V.37 NO. 6. Available at: http://www.aapd.org/media/Policies_Guidelines/D_DentalHome.pdf. Downloaded on 8-10-2016.

¹⁰ American Academy of Pediatric Dentistry, Guidelines on Caries-risk Assessment and Management for Infants, Children and Adolescents, V. 37 NO. 6. Available at: http://www.aapd.org/media/Policies_Guidelines/G_CariesRiskAssessment.pdf. Downloaded on 6/29/2016.

high—should be determined so that the need for and frequency of fluoride treatments or other necessary services and procedures can be planned according to the risk level.

The dental records were reviewed for documentation of the individual biological, protective and clinical findings elements of a caries risk assessment as recommended by the AAPD. Approximately one-third (32.62%) of members with a comprehensive exam claim submission did not have any elements of a caries risk assessment documented in the dental record. In total, 67.38% of members had an element of caries risk documented in the dental record, but overall, over half (58.15%) of the members did not have the specific level of risk documented, and had, for example, a statement related to decay, including 44.23% of infants and toddlers, 49.55% of preschool children, 59.87% of school-aged children and 67.55% of adolescents. The specific level of risk was not frequently documented—5.58% had high risk, 1.07% had moderate risk, and 2.58% had low risk documented. It should be noted that Caries Risk Assessment claim codes (Caries Risk Assessment, Low Risk CDT-D0601; Caries Risk Assessment, Moderate Risk CDT-D0602; and Caries Risk Assessment, High Risk CDT-D0603) are not listed on the current Kentucky DMS Dental Fee Schedule or on the Schedule in effect for the study sample. Overall, the majority of members did not have biological (97.00%) or protective (91.85%) risks documented, while, overall, approximately 40% of members had at least one clinical finding documented, including 22.75% with cavities and 19.96% with plaque.

Fluoride Assessment Documented

The AADP recommends that a fluoride assessment, including the source of fluoride, be conducted during a comprehensive visit so that the risk for caries can be determined, and so that the provider can ensure that the child has “optimal fluoride exposure” to help prevent, inhibit and reverse caries. A fluoride assessment was not documented in the majority of dental records overall (91.85%) or by member age, including 88.46% of infants and toddlers, 87.39% of preschool children, 92.76% of school-aged children, and 95.36% of adolescents. For the majority (95.92%) of members overall, therefore, the fluoride source (i.e., household water or supplements) could not be determined from the dental record documentation.

Prophylaxis

Prophylaxis removes plaque and helps prevent the development of caries. The AADP recommends the frequency of prophylaxis be based on the assessed level of risk for caries and periodontal disease, and minimally be provided every six months. The majority (90.99%) of members with a comprehensive exam claim submission overall had prophylaxis documented on the comprehensive exam DOS, including 88.46% of infants and toddlers, 94.59% of preschool children, 92.11% of school-aged children, and 88.08% of adolescents.

Topical Fluoride Application

The AADP recommends topical fluoride applications ideally occur every six months during a comprehensive exam, but the frequency of topical fluoride applications should be tailored to the individual level of caries risk, i.e., a child with high caries risk might need a fluoride application more frequently than every six months. Fluoride treatments can be applied by placing a gel or foam into a tray that remains on the teeth during the visit for a specified amount of time, or fluoride can be directly applied to, or “painted on,” the teeth via “varnish.” Overall, 57.73% of members had a fluoride application documented—primarily as a general statement, e.g., “fluoride application,” or abbreviation, e.g., “Fl Tx.”—in the dental record on the comprehensive exam DOS, including 57.69% of infants and toddlers, 54.05% of preschool children, 60.53% of school-aged children, and 57.62% of adolescents.

Behavioral Assessment

The AADP recommends documenting behavior during a dental visit to aid in planning for future visits so that the provider can use appropriate pharmacological and non-pharmacological techniques to ensure a safe and positive dental experience, especially for children with special health care needs.

The dental records were reviewed for documentation of cooperative or non-cooperative behavior statements. Overall, 40.56% of members had a cooperative behavior assessment documented in the dental record on the exam DOS, including 59.62% of infants and toddlers, 45.05% of preschool children, 51.97% of school-aged children, and 19.21% of adolescents. In total, 7.30% of members had a non-cooperative behavior assessment documented, including 15.38% of infants and toddlers, 14.41% of preschool children, 5.26% of school-aged children, and 1.32% of adolescents. A behavior assessment was not documented for over half of members (52.15%), including 25.00% of infants and toddlers, 40.54% of preschool children, 42.76% of school-aged children, and 79.47% of adolescents.

Anticipatory Guidance

The AADP recommends that anticipatory guidance be provided during a dental exam for nutrition and diet, oral hygiene and safety. Overall, nutrition and dietary counseling was not well documented in the dental records; 78.33% of members had no nutrition counseling documented, 20.17% had general nutrition, for example a check mark for "nutrition counseling" documented, and less than 2% of members had any of the specific nutrition topics recommended by the AADP documented, such as avoidance of soda or sugar drinks. In total, only three (0.64%) members had safety counseling documented; one preschool member and one school-aged child had general safety counseling, and one adolescent had tobacco avoidance counseling, documented in the dental record. Just under two-thirds (63.52%) of members overall had general oral hygiene counseling; 17.81% of members overall had specific counseling to brush twice daily and 17.17% were counseled to floss daily. Only five (1.07%) members were counseled to have topical fluoride treatments; one member was counseled to use fluoride toothpaste. None of the other AADP recommended oral hygiene counseling topics, such as to avoid taking a bottle to bed, or to use a soft tooth brush were documented in the dental records.

Claim Validation

Overall, the Comprehensive Oral Evaluation claim code (CDT- D0150) was submitted for 81.18% (466/574) of the study sample (Table 4). For the purpose of this claim validation study, IPRO identified the minimum exam components for a comprehensive dental exam should include documentation of at least one component of a health history, such as a review of past medical history, at least one clinical exam component, such as dentition, a chief complaint or reason for the exam, and prophylaxis. A review of the dental records for those members for whom the comprehensive exam code claim was submitted shows the majority (71.03%) overall had dental record documentation meeting the minimum criteria for a comprehensive exam, including 73.08% of infants and toddlers, 75.68% of preschool children, 69.08% of school-aged children, and 68.87% of adolescents¹¹.

¹¹ Two Passport members (ages 4 and 6), had both a comprehensive exam claim and a periodic exam claim submitted on the same exam DOS, and both members had all components of a comprehensive and a periodic exam documented in the dental record. Claims data from the IPRO Data Warehouse show the periodic claim was paid and the comprehensive exam was not paid. Both members were removed from the comprehensive exam validation above, i.e., the number of preschool children with "all elements of a comprehensive exam" was reduced from 85 to 84, and the number of school-aged children with all elements of a comprehensive exam was reduced from 106 to 105.

Table 4: Oral Exam Type - Dental Record Documentation for Members with Comprehensive Oral Evaluation Claim, by Age

Oral Exam Evaluation Components (n = 574 Members in Final Study Sample)	Infants and Toddlers (n = 59)		Preschool Children (n = 131)		School-Aged Children (n = 190)		Adolescents (n = 194)		Total (n = 574)	
Comprehensive Oral Evaluation claim code (D0150) (n= 466)	n = 52	88.14%	111	84.73%	152	80.00%	151	77.84%	466	81.18%
Identified by dental provider as a comprehensive oral evaluation in dental record	20	38.46%	39	35.14%	80	52.63%	72	47.68%	211	45.28%
Extraoral/Oral cavity/Periodontal/Occlusion exam	n = 52		n = 111		n = 152		n = 151		n = 466	
Yes	49	94.23%	98	88.29%	132	86.84%	133	88.08%	412	88.41%
No	3	5.77%	13	11.71%	20	13.16%	18	11.92%	54	11.59%
Health history obtained	n = 52		n = 111		n = 152		n = 151		n = 466	
Medical history reviewed	43	82.69%	88	79.28%	112	73.68%	98	64.90%	341	73.18%
Positive medical issue	6	11.54%	11	9.91%	22	14.47%	22	14.57%	61	13.09%
Hospitalization/Surgery History	14	26.92%	27	24.32%	35	23.03%	24	15.89%	100	21.46%
Immunization Status	5	9.62%	10	9.01%	10	6.58%	3	1.99%	28	6.01%
Allergies Status	34	65.38%	59	53.15%	76	50.00%	54	35.76%	223	47.85%
Medication Status	30	57.69%	55	49.55%	62	40.79%	56	37.09%	203	43.56%
Antibiotic Prophylaxis	3	5.77%	4	3.60%	5	3.29%	4	2.65%	16	3.43%
Tobacco use assessment	4	7.69%	9	8.11%	21	13.82%	22	14.57%	56	12.02%
Positive tobacco use	0	0.00%	0	0.00%	0	0.00%	4	2.65%	4	0.86%
Past dental history	13	25.00%	18	16.22%	39	25.66%	38	25.17%	108	23.18%
Dental home status	26	50.00%	60	54.05%	99	65.13%	108	71.52%	293	62.88%
No dental home documented	0	0.00%	1	0.90%	0	0.00%	0	0.00%	1	0.21%
None	7	13.46%	10	9.01%	18	11.84%	12	7.95%	47	10.09%
Chief complaint	n = 52		n = 111		n = 152		n = 151		n = 466	
Exam	40	76.92%	93	83.78%	115	75.66%	126	83.44%	374	80.26%
Cleaning/Prophylaxis	39	75.00%	94	84.68%	114	75.00%	122	80.79%	369	79.18%
Initial visit/Establish dental home	22	42.31%	31	27.93%	31	20.39%	19	12.58%	103	22.10%
Pain	1	1.92%	2	1.80%	6	3.95%	9	5.96%	18	3.86%
Acute trauma	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Second opinion/Referral	0	0.00%	1	0.90%	0	0.00%	1	0.66%	2	0.43%
Restorative care	0	0.00%	2	1.80%	11	7.24%	12	7.95%	25	5.36%
Recall	2	3.85%	8	7.21%	22	14.47%	11	7.28%	43	9.23%
Swelling	0	0.00%	1	0.90%	0	0.00%	0	0.00%	1	0.21%

Oral Exam Evaluation Components (n = 574 Members in Final Study Sample)	Infants and Toddlers (n = 59)		Preschool Children (n = 131)		School-Aged Children (n = 190)		Adolescents (n = 194)		Total (n = 574)	
Comprehensive Oral Evaluation claim code (D0150) (n= 466)	n = 52	88.14%	111	84.73%	152	80.00%	151	77.84%	466	81.18%
Other	1	1.92%	4	3.60%	8	5.26%	3	1.99%	16	3.43%
None	1	1.92%	0	0.00%	2	1.32%	5	3.31%	8	1.72%
Not documented	4	7.69%	4	3.60%	11	7.24%	4	2.65%	23	4.94%
Clinical exam components	n = 52		n = 111		n = 152		n = 151		n = 466	
Dental exam (color, form, number)/Caries	47	90.38%	95	85.59%	129	84.87%	129	85.43%	400	85.84%
Normal occlusion (bite test)	27	51.92%	54	48.65%	85	55.92%	56	37.09%	222	47.64%
Examine maxillary incisors	21	40.38%	46	41.44%	71	46.71%	54	35.76%	192	41.20%
Upper/Lower lip/Buccal mucosa	38	73.08%	74	66.67%	93	61.18%	80	52.98%	285	61.16%
Plaque accumulation/Gum line exam	35	67.31%	75	67.57%	105	69.08%	101	66.89%	316	67.81%
Pressure point tenderness	0	0.00%	1	0.90%	0	0.00%	0	0.00%	1	0.21%
Fissures	0	0.00%	0	0.00%	2	1.32%	2	1.32%	4	0.86%
Palate	43	82.69%	81	72.97%	107	70.39%	89	58.94%	320	68.67%
Tongue	42	80.77%	81	72.97%	107	70.39%	92	60.93%	322	69.10%
Oropharynx	43	82.69%	81	72.97%	107	70.39%	92	60.93%	323	69.31%
TMJ Assessment	30	57.69%	54	48.65%	77	50.66%	62	41.06%	223	47.85%
Neck/Lymph	27	51.92%	53	47.75%	70	46.05%	57	37.75%	207	44.42%
None of the above	4	7.69%	10	9.01%	19	12.50%	16	10.60%	49	10.52%
Caries risk assessment	n = 52		n = 111		n = 152		n = 151		n = 466	
No	19	36.54%	41	36.94%	46	30.26%	46	30.46%	152	32.62%
Yes	33	63.46%	70	63.06%	106	69.74%	105	69.54%	314	67.38%
Yes, high risk	2	3.85%	10	9.01%	12	7.89%	2	1.32%	26	5.58%
Yes, moderate risk	1	1.92%	1	0.90%	2	1.32%	1	0.66%	5	1.07%
Yes, low risk	7	13.46%	4	3.60%	1	0.66%	0	0.00%	12	2.58%
Yes, risk level not documented	23	44.23%	55	49.55%	91	59.87%	102	67.55%	271	58.15%
Elements of caries risk documented	n = 52		n = 111		n = 152		n = 151		n = 466	
Biological										
Caregiver has active caries	2	3.85%	0	0.00%	0	0.00%	0	0.00%	2	0.43%
Low socioeconomic status	2	3.85%	1	0.90%	1	0.66%	0	0.00%	4	0.86%
Child has >3 sugar-containing snacks or beverages/day	1	1.92%	2	1.80%	4	2.63%	0	0.00%	7	1.50%

Oral Exam Evaluation Components (n = 574 Members in Final Study Sample)	Infants and Toddlers (n = 59)		Preschool Children (n = 131)		School-Aged Children (n = 190)		Adolescents (n = 194)		Total (n = 574)	
Comprehensive Oral Evaluation claim code (D0150) (n= 466)	n = 52	88.14%	111	84.73%	152	80.00%	151	77.84%	466	81.18%
Put to bed with a bottle	1	1.92%	1	0.90%	0	0.00%	0	0.00%	2	0.43%
Child has special health care needs	0	0.00%	0	0.00%	1	0.66%	1	0.66%	2	0.43%
Child is a recent immigrant	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
None	49	94.23%	107	96.40%	146	96.05%	150	99.34%	452	97.00%
Protective										
Non-fluoride water source	0	0.00%	1	0.90%	2	1.32%	2	1.32%	5	1.07%
Poor oral hygiene	1	1.92%	7	6.31%	13	8.55%	8	5.30%	29	6.22%
No dental home/or dental care history	0	0.00%	1	0.90%	2	1.32%	0	0.00%	3	0.64%
No topical fluoride history	1	1.92%	1	0.90%	0	0.00%	0	0.00%	2	0.43%
None	50	96.15%	102	91.89%	135	88.82%	141	93.38%	428	91.85%
Clinical findings										
White spot lesions/enamel defects	0	0.00%	0	0.00%	2	1.32%	2	1.32%	4	0.86%
Visible cavities/fillings	8	15.38%	23	20.72%	43	28.29%	32	21.19%	106	22.75%
Plaque on teeth	3	5.77%	19	17.12%	32	21.05%	39	25.83%	93	19.96%
Elevated <i>Mutans streptococci</i> levels	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Defective restorations	0	0.00%	0	0.00%	2	1.32%	1	0.66%	3	0.64%
Wearing an intraoral appliance	0	0.00%	0	0.00%	2	1.32%	11	7.28%	13	2.79%
None	41	78.85%	74	66.67%	81	53.29%	84	55.63%	280	60.09%
Fluoride assessment documented	n = 52		n = 111		n = 152		n = 151		n = 466	
Yes	6	11.54%	14	12.61%	11	7.24%	7	4.64%	38	8.15%
No	46	88.46%	97	87.39%	141	92.76%	144	95.36%	428	91.85%
Household fluoridated water source	n = 52		n = 111		n = 152		n = 151		n = 466	
Yes	2	3.85%	4	3.60%	2	1.32%	1	0.66%	9	1.93%
No	0	0.00%	3	2.70%	2	1.32%	2	1.32%	7	1.50%
Fluoride supplements	0	0.00%	1	0.90%	2	1.32%	0	0.00%	3	0.64%
Unable to determine	50	96.15%	103	92.79%	146	96.05%	148	98.01%	447	95.92%
Prophylaxis	n = 52		n = 111		n = 152		n = 151		n = 466	
Adult prophylaxis	0	0.00%	0	0.00%	0	0.00%	35	23.18%	35	7.51%
Child prophylaxis	46	88.46%	105	94.59%	140	92.11%	53	35.10%	344	73.82%
Prophylaxis (general statement, age not specified)	0	0.00%	0	0.00%	0	0.00%	45	29.80%	45	9.66%

Oral Exam Evaluation Components (n = 574 Members in Final Study Sample)	Infants and Toddlers (n = 59)		Preschool Children (n = 131)		School-Aged Children (n = 190)		Adolescents (n = 194)		Total (n = 574)	
Comprehensive Oral Evaluation claim code (D0150) (n= 466)	n = 52	88.14%	111	84.73%	152	80.00%	151	77.84%	466	81.18%
Prophylaxis total	46	88.46%	105	94.59%	140	92.11%	133	88.08%	424	90.99%
Topical fluoride application	n = 52		n = 111		n = 152		n = 151		n = 466	
Adult topical application	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Child topical application	4	7.69%	4	3.60%	7	4.61%	12	7.95%	27	5.79%
Topical fluoride application (general statement, age not specified)	26	50.00%	56	50.45%	85	55.92%	75	49.67%	242	51.93%
Topical fluoride application total	30	57.69%	60	54.05%	92	60.53%	87	57.62%	269	57.73%
Behavioral assessment	n = 52		n = 111		n = 152		n = 151		n = 466	
Cooperative	31	59.62%	50	45.05%	79	51.97%	29	19.21%	189	40.56%
Non-cooperative	8	15.38%	16	14.41%	8	5.26%	2	1.32%	34	7.30%
Not documented	13	25.00%	45	40.54%	65	42.76%	120	79.47%	243	52.15%
Anticipatory guidance	n = 52		n = 111		n = 152		n = 151		n = 466	
Nutrition and diet counseling										
Eat healthy snacks	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Eat less-to-no junk food or candy	2	3.85%	1	0.90%	2	1.32%	0	0.00%	5	1.07%
No soda/sugar drinks	1	1.92%	4	3.60%	4	2.63%	0	0.00%	9	1.93%
Xylitol	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
No sugar drinks in bed	0	0.00%	1	0.90%	0	0.00%	0	0.00%	1	0.21%
Wean off bottle	2	3.85%	0	0.00%	0	0.00%	0	0.00%	2	0.43%
Less-to-no juice intake	0	0.00%	4	3.60%	2	1.32%	0	0.00%	6	1.29%
Drink tap water/only water in sippy cup	2	3.85%	2	1.80%	3	1.97%	0	0.00%	7	1.50%
General counseling	14	26.92%	27	24.32%	39	25.66%	14	9.27%	94	20.17%
None	35	67.31%	81	72.97%	112	73.68%	137	90.73%	365	78.33%
Safety counseling										
Mouth guard during sports	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Tobacco avoidance counseling	0	0.00%	0	0.00%	0	0.00%	1	0.66%	1	0.21%
General counseling	0	0.00%	1	0.90%	1	0.66%	0	0.00%	2	0.43%
None	52	100.00%	110	99.10%	151	99.34%	150	99.34%	463	99.36%
Oral hygiene – general counseling										

Oral Exam Evaluation Components (n = 574 Members in Final Study Sample)	Infants and Toddlers (n = 59)		Preschool Children (n = 131)		School-Aged Children (n = 190)		Adolescents (n = 194)		Total (n = 574)	
	n = 52	88.14%	111	84.73%	152	80.00%	151	77.84%	466	81.18%
Comprehensive Oral Evaluation claim code (D0150) (n= 466)										
Use fluoride toothpaste	1	1.92%	0	0.00%	0	0.00%	0	0.00%	1	0.21%
No sharing of utensils	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Fluoridated water source or supplement	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
General counseling	35	67.31%	75	67.57%	105	69.08%	81	53.64%	296	63.52%
Use soft toothbrush	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Avoidance of Bottle in Bed	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Establish a dental home by the age of 12 month by 1st tooth	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Brush twice daily	5	9.62%	14	12.61%	36	23.68%	28	18.54%	83	17.81%
Use clean pacifier	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
If still using bottle, offer only water	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Flossing once daily flossing	4	7.69%	13	11.71%	37	24.34%	26	17.22%	80	17.17%
Regular visits with dentist (twice yearly)	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Dental treatments for parents	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Topical fluoride treatments	0	0.00%	1	0.90%	2	1.32%	2	1.32%	5	1.07%
None	17	32.69%	35	31.53%	44	28.95%	64	42.38%	160	34.33%
Comprehensive Oral Evaluation claim code (D0150)	n = 52		n = 111		n = 152		n = 151		n = 466	
Percent of dental records with all elements of a comprehensive exam ^{1, 2}	38	73.08%	84	75.68%	105	69.08%	104	68.87%	331	71.03%

¹ A comprehensive oral exam includes the following components: At least one component documented from the Health History Section; at least one component documented from the Chief Complaint Section; at least one component documented from the Clinical Exam Components Section; Prophylaxis documented.

² Two Passport members (ages 4 and 6), had both a comprehensive exam claim and a periodic exam claim submitted on the same exam DOS, and both members had all components of a comprehensive and periodic exam documented in the dental record. Claims data from the IPRO Data Warehouse show the periodic claim was paid and the comprehensive exam was not paid. Both members were removed from the comprehensive exam validation above, i.e., the number of preschool children with "all elements of a comprehensive exam" was reduced from 85 to 84, and the number of school-aged children with all elements of a comprehensive exam was reduced from 106 to 105. Dark blue: total claims and dental record validation.

Preventive Service and Diagnostic and Restorative Procedure Codes submitted for Members with a Comprehensive Oral Evaluation by Age Group

Members, for whom a Comprehensive Oral Evaluation (CDT- D0150) claim was submitted, also had claims for the following preventive services and diagnostic and restorative procedures submitted on the exam DOS (Table 5):

Prophylaxis

The current Kentucky DMS Dental Fee Schedule, as well as the Schedule in effect for the study sample, notes that an Adult Prophylaxis claim code should be used for members age 14 years and older, and a Child Prophylaxis claim code should be used for younger children. In contrast, the ADA, as well as some other state Medicaid programs (e.g., Maryland's Medicaid Dental Fee Schedule¹²), do not base the code on age, but rather describe child prophylaxis as "performed on primary or transitional teeth", and adult prophylaxis as "performed on transitional or permanent teeth". Overall, an Adult Prophylaxis (CDT-D1110) claim was submitted for 18.88% of the members with a comprehensive oral exam code submitted and all of these members were in the adolescent age group of 12 years and older. All but one of the 88 members that had an adult prophylaxis claim submitted, had documentation of prophylaxis in the dental record; 39.77% had adult prophylaxis specifically documented, 7.95% had child prophylaxis documented and 51.14% had a general "prophylaxis" statement without age specified documented in the dental record. Overall, 73.82% of members who had a comprehensive exam code submitted had a Child Prophylaxis claim (CDT-1120) submitted, including 90.38% of infants and toddlers, 94.59% of preschool children, 94.74% of school-aged children and 31.79% of adolescents. All but nine of these members (97.38%) with a child prophylaxis claim submitted had prophylaxis documented in the dental record.

Fluoride Treatments

The Kentucky DMS Dental Fee Schedule in effect for members in the sample notes that the Adult Topical Fluoride Application code (CDT-1204) should be used for members ages 14 years and older and the Child code (CDT-1203) used for younger members, whereas the current Kentucky DMS Dental Fee Schedule lists only the Topical Fluoride Application—excluding varnish—(CDT-1208) and Topical Fluoride Varnish (CDT-D1206) codes, without age specificity. Only one adolescent member with a comprehensive exam code submitted had an Adult Topical Application of Fluoride (CDT-1204) claim submitted on the exam DOS—this member did not have any fluoride treatment statements documented in the dental record. Two adolescents and two school-aged children had a Child Topical Fluoride (CDT-1203) claim submitted; one of these adolescents had two child fluoride claims submitted. Both adolescents and one of the school-aged members had child prophylaxis documented in their dental records; the other school-aged child had a general fluoride treatment statement, without age specification, documented in the dental record. Overall 80.90% of members had a Topical Fluoride Application Excluding Varnish (CDT-D1208) claim code submitted—although none of these members had an explicit "excluding varnish" statement in the dental record, 69.50% had a general fluoride treatment statement documented and 25.73% had a "fluoride *varnish* treatment" documented; 18 (4.77%) members did not have any fluoride treatment documented in the dental record. Five members had a Topical Fluoride Varnish (CDT-1206) claim submitted. One member in the infant and toddlers age group had a general topical fluoride application statement documented in the dental record; the three preschool children and one school-aged child had topical fluoride varnish documented in the dental record.

Sealants

¹² Maryland Medicaid Dental Fee Schedule and Procedure Codes CDT 2015. Revision October 2014. Effective Date January 1, 2015. Available at: downloaded, 8/4/2016. The Maryland Fee Schedule notes that code definitions and nomenclature on their schedule are a verbatim reproduction of the *Current Dental Terminology (CDT) 2014 Dental Procedure Codes* copyrighted by the American Dental Association. © 2013 American Dental Association. All rights reserved.

The AAPD recommends dental sealants—a plastic coating applied to the surface of a tooth to create a barrier to acids and plaque—be applied to pits or fissures to prevent decay. Although typically used for a child’s primary teeth, adolescents prone to decay can also benefit from sealants on permanent teeth.

Dental sealant codes are submitted for each tooth treated. Overall, 21 members (4.50%) who had a comprehensive oral exam claim code submitted, had a total of 77 Sealants (CDT-D1351) claims submitted on the exam DOS. All of these members had at least the same number of sealants documented in the dental record as the number of sealant claims submitted, and it should be noted that some of the members had more sealants documented than the number of claims submitted. The Kentucky DMS Dental Fee Schedule states that sealants should be provided for children of age 5 years and older; one preschool child had two sealant claims submitted on the comprehensive exam claim DOS and two sealants were documented in the dental record for this child.

Extractions

When a tooth must be removed for decay, infection or trauma, the extraction can be simple, or require a “surgical” incision. The dental claim codes vary by the complexity of the extraction procedure, i.e., whether or not an incision was required, and the number of teeth being extracted. Overall, 14 (3.00%, 14/466) members with a comprehensive exam claim also had a total of 20 claims submitted for extractions on the exam DOS, and all these members had the number and type of extraction documented in the dental record.

Fillings

Fillings are a restorative material (amalgam, a metal alloy; or resin, a synthetic composite) applied directly to one of the five tooth surfaces (distal, occlusal, buccal, mesial, lingual/palatal), and are referred to by the location of the tooth to which they are applied, i.e., anterior (in the front of the mouth), and posterior (in rear of mouth).

Filling claim codes are specific to the material, location, and number of surfaces treated on each tooth, as well as total number of teeth treated. Overall, the number of surfaces treated was not documented in any dental record, and the tooth location was not always documented. A total of 25 members (5.37%), who had a comprehensive exam claim, also had claims submitted for a filling. All of these members had the type of filling material and number of fillings documented in the dental record corresponding to the filling claim code submitted except the following: one adolescent with six fillings claims submitted for Resin – Four or More Surfaces, Anterior claim code (CDT-D2335) did not have any fillings documented in the dental record; one school-aged child with one Resin – One Surface, Posterior code (CDT-D2391) filling claim and one school- aged child with one Resin – Two Surfaces, Posterior code (CDT-D2392) filling claim submitted, did not have any fillings documented in the dental record.

Diagnostic Imaging/X-Rays

X-ray claims are specific to the location of the tooth/teeth filmed (i.e., bitewings are taken of the posterior teeth), the amount of the oral cavity captured (i.e., periapical x-rays capture the entire tooth down to the tissue at the root), as well as the number of images. Some of the 466 members with a comprehensive oral exam submission had multiple x-ray claims submitted on that same exam DOS and in total, 523 X-ray claims were submitted on the same DOS as a member’s comprehensive oral exam claim submission. All the members with x-ray claims had documentation of the type and number of images in the dental record corresponding to the specific x-ray claim code except the following: for two school-aged children, the provider submitted two Periapical First Image (CDT-D0220) claim codes, for the two documented periapical x-rays, rather than submitting one claim code for the first periapical x-ray, and one claim code for the second/additional tooth (CDT-D0230); and among members with a claim submitted for Bitewings-Two Images (CDT-D0272) on the comprehensive exam DOS, three school-aged children did not have any x-rays documented in the dental record, two school-aged members had *one image* rather than *two images* documented in the dental record, one

school-aged member had an x-ray documented in a general statement, without the x-ray type specified, and one adolescent did not have any x-rays documented in the dental record.

Crowns

The crown of the tooth is the portion that extends above the gum line. When a tooth is damaged beyond what can be restored with a filling, a crown might be placed to cover and support a larger portion of the remaining tooth. A crown can be made of stainless steel which can be covered or replaced with resin for a more cosmetically appealing color to match the actual teeth. Only one school-aged child had a claim submitted for a crown on the comprehensive exam DOS and this member had the crown treatment documented in the dental record.

Therapeutic Pulpotomy

The nerve of the tooth is referred to as the "pulp". A therapeutic pulpotomy is a restorative procedure to remove and/or slow the progression of decay near the tooth's pulp, and the surgical removal of a portion of pulp if necessary to save the remainder of undamaged nerve. Only one school-aged child had a claim submitted for a Therapeutic Pulpotomy (CDT-D3220) on the comprehensive exam DOS and this member had the therapeutic pulpotomy treatment documented in the dental record.

Pulp Capping

Pulp capping is a procedure to prevent the nerve from dying if exposed during a restorative procedure, by placing a protective dressing or cement over the exposed root to protect from injury. In total, only one adolescent member had two claims submitted for Pulp Capping (CDT-D3110) on the comprehensive exam DOS and this member had both pulp capping treatments documented in the dental record.

Pain Management

Both the current Kentucky DMS Dental Fee Schedule and the one in effect for members in the study sample, list Palliative Treatment of Dental Pain (CDT-9110), which is described as appropriate for local anesthetics to prevent pain at the procedure site, as opposed to an inhaled (i.e., nitrous oxide) or intravenous medication analgesia that might be provided for anxiety. Only one school-aged child had a claim submitted for this procedure code on the comprehensive exam DOS; this member had treatment for pain documented in the dental record. One adolescent had a claim submitted for General Anesthesia (CDT-9220) on the comprehensive exam DOS and general anesthesia was documented in the dental record. Neither the current Kentucky DMS Dental Fee Schedule, nor the one in effect for members in the study sample, list the claim code for an Inhaled or Intravenous Analgesia, Anti-anxiety Medication (CDT-D9230), although one preschool child and 4 school aged children had this procedure claim submitted on the comprehensive exam DOS; all 5 children had dental record documentation of analgesia.

Oral Hygiene Instruction

Overall 216 (46.35%) members had oral hygiene instruction documented in the dental record on the comprehensive exam DOS, but only 3 of these members (1 infant/toddler, 1 preschool child and 1 adolescent) had a claim code submitted for Oral Hygiene Instruction (CDT-D1330) on the exam DOS. It should be noted that neither the current Kentucky DMS Dental Fee Schedule, nor the one in effect for the study sample, include the Oral Hygiene Instruction claim code.

Table 5: Preventive Services and Restorative Procedures Claims/Documented Services: Members with a Comprehensive Oral Exam by Age Group

Preventive Services and Restorative Procedure Claims (n = 574 Members in Final Study Sample)	Infants and Toddlers (n = 59)		Preschool Children (n = 131)		School-Aged Children (n = 190)		Adolescents (n = 194)		Total (n = 574)	
Comprehensive Oral Evaluation claim code (D0150) (n = 466)	n = 52	88.14%	111	84.73%	152	80.00%	151	77.84%	466	81.18%
Prophylaxis/Dental cleaning	n = 52		n = 111		n = 152		n = 151		n = 466	
Total Prophylaxis Claims (D1110 and D1120)	47	90.38%	105	94.59%	144	94.74%	136	90.10%	432	92.70%
Total Prophylaxis documented in dental record	46	97.87%	105	100.00%	138	95.83%	133	97.80%	422	97.69%
No Prophylaxis statement documented in dental record	1	2.13%	0	0.00%	6	4.17%	3	2.21%	10	2.31%
Adult Prophylaxis/Dental Cleaning claim code (D1110) ¹	0	0.00%	0	0.00%	0	0.00%	88	58.28%	88	18.88%
Members with Prophylaxis documented in dental record	N/A	N/A	N/A	N/A	N/A	N/A	87	98.86%	87	98.86%
No Prophylaxis statement documented in dental record	N/A	N/A	N/A	N/A	N/A	N/A	1	1.14%	1	1.14%
Child Prophylaxis/Dental Cleaning claim code (D1120) ²	47	90.38%	105	94.59%	144	94.74%	48	31.79%	344	73.82%
Members with Prophylaxis documented in dental record	46	97.87%	105	100.00%	138	95.83%	46	95.83%	335	97.38%
No Prophylaxis statement documented in dental record	1	2.13%	0	0.00%	6	4.17%	2	4.17%	9	2.62%
Topical fluoride application/treatment	n = 52		n = 111		n = 152		n = 151		n = 466	
Total Topical Fluoride Application claims codes (D1204, D1203, D1208)	48	92.31%	96	86.49%	137	90.13%	102	67.55%	383	82.19%
Total Fluoride Application statement documented in dental record	48	100.00%	89	92.71%	131	95.62%	95	93.14%	363	94.78%
Total No Fluoride Application statement documented in dental record	0	0.00%	7	7.29%	6	4.38%	7	6.86%	20	5.22%
Number of members with Adult Topical Fluoride Application claim code (D1204) ³	0	0.00%	0	0.00%	0	0.00%	1	0.66%	1	0.21%
Member had Fluoride Application statement in dental record	N/A	N/A	N/A	N/A	N/A	N/A	0	0.00%	0	0.00%

Preventive Services and Restorative Procedure Claims (n = 574 Members in Final Study Sample)	Infants and Toddlers (n = 59)		Preschool Children (n = 131)		School-Aged Children (n = 190)		Adolescents (n = 194)		Total (n = 574)	
Comprehensive Oral Evaluation claim code (D0150) (n = 466)	n = 52	88.14%	111	84.73%	152	80.00%	151	77.84%	466	81.18%
No Fluoride Application statement documented in dental record ³	N/A	N/A	N/A	N/A	N/A	N/A	1	100.00%	1	100.00%
Number of Child Topical Fluoride Application claim codes (D1203) ⁴	0	0.00%	0	0.00%	2	1.32%	3	1.99%	5	1.07%
Member had Fluoride Application statement documented in dental record	N/A	N/A	N/A	N/A	2	100.00%	2	66.67%	4	80.00%
No Fluoride Application statement in dental record	N/A	N/A	N/A	N/A	0	0.00%	1	33.33%	1	20.00%
Number of members with Topical Fluoride Application claim code (D1208_Exc. Varnish) ⁵	48	92.31%	96	86.49%	135	88.82%	98	64.90%	377	80.90%
Total Topical Application Fluoride documented in dental record	48	100.00%	89	92.71%	129	95.56%	93	94.90%	359	95.23%
No Fluoride Application statement documented in dental record	0	0.00%	7	7.29%	6	4.44%	5	5.10%	18	4.77%
Topical fluoride varnish	n = 52		n = 111		n = 152		n = 151		n = 466	
Number of members with one Topical Fluoride Varnish claim code (D1206)	1	1.92%	3	2.70%	1	0.66%	0	0.00%	5	1.07%
Total Topical Fluoride Varnish documented in dental record ¹³	1	100.00%	3	100.00%	1	100.00%	N/A	N/A	5	100.00%
No Topical Fluoride Varnish documented in dental record	0	0.00%	0	0.00%	0	0.00%	N/A	N/A	0	0.00%
Dental sealants (per tooth)	n = 52		n = 111		n = 152		n = 151		n = 466	
Total Sealant claims code (D1351) ¹⁴ for 21 members	0	0.00%	2	1.80%	42	27.632%	33	21.85%	77	16.52%
Total Dental Sealants documented in dental record	N/A	N/A	2	100.00%	42	100.00%	33	100.00%	77	100.00%

¹³ Three preschool children and one school-aged child had topical varnish documented in the dental record; one infant/toddler had topical fluoride as a general statement in the dental record.

¹⁴ A total of 21 members with a comprehensive exam claim submitted had a total of 77 sealant claims submitted in the exam DOS.

Preventive Services and Restorative Procedure Claims (n = 574 Members in Final Study Sample)	Infants and Toddlers (n = 59)		Preschool Children (n = 131)		School-Aged Children (n = 190)		Adolescents (n = 194)		Total (n = 574)	
Comprehensive Oral Evaluation claim code (D0150) (n = 466)	n = 52	88.14%	111	84.73%	152	80.00%	151	77.84%	466	81.18%
No Dental Sealants documented in dental record	N/A	N/A	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Extractions	n = 52		n = 111		n = 152		n = 151		n = 466	
Total Extraction Claims (Codes: D7111, D7140, D7210, D7240) for 14 members	0	0.00%	1	0.90%	11	7.24%	8	5.30%	20	4.29%
Total Extractions documented in dental record	N/A	N/A	1	100.00%	11	100.00%	8	100.00%	20	100.00%
No Extraction documented in dental record	N/A	N/A	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Number of members with one Extractions of Coronal Remnants claim code (D7111)	0	0.00%	0	0.00%	2	1.32%	1	0.66%	3	0.64%
Total Extraction of Coronal Remnants documented in dental record	N/A	N/A	N/A	N/A	2	100.00%	1	100.00%	3	100.00%
No Extraction documented in dental record	N/A	N/A	N/A	N/A	0	0.00%	0	0.00%	0	0.00%
Number of Extraction of erupted tooth/exposed root claims code (D7140) for 9 members	0	0.00%	1	0.90%	9	5.92%	2	1.32%	12	2.58%
Member had Extraction of erupted tooth/exposed root documented in dental record	N/A	N/A	1	100.00%	9	100.00%	2	100.00%	12	100.00%
No Extraction documented in dental record	N/A	N/A	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Number of Surgical Removal of erupted tooth claims code (D7210) for one member	0	0.00%	0	0.00%	0	0.00%	1	0.66%	1	0.21%
Member had one Surgical Removal of erupted tooth documented in dental record	N/A	N/A	N/A	N/A	N/A	N/A	1	100.00%	1	100.00%
No Extraction documented in dental record	N/A	N/A	N/A	N/A	N/A	N/A	0	0.00%	0	0.00%

Preventive Services and Restorative Procedure Claims (n = 574 Members in Final Study Sample)	Infants and Toddlers (n = 59)		Preschool Children (n = 131)		School-Aged Children (n = 190)		Adolescents (n = 194)		Total (n = 574)	
Comprehensive Oral Evaluation claim code (D0150) (n = 466)	n = 52	88.14%	111	84.73%	152	80.00%	151	77.84%	466	81.18%
Number of Extractions of impacted tooth claims code (D7240) submitted for one member	0	0.00%	0	0.00%	0	0.00%	4	2.65%	4	0.86%
Member had Extractions of impacted teeth documented in dental record	N/A	N/A	N/A	N/A	N/A	N/A	4	100.00%	4	100.00%
No Extractions documented in dental record	N/A	N/A	N/A	N/A	N/A	N/A	0	0.00%	0	0.00%
Fillings	n = 52		n = 111		n = 152		n = 151		n = 466	
Total Fillings Claims (all codes) for 25 members	0	0.00%	2	1.80%	24	15.79%	16	10.60%	42	9.01%
Total Fillings documented in dental record	N/A	N/A	2	100.00%	22	91.67%	10	62.50%	34	80.95%
No Fillings statement documented in dental record	N/A	N/A	0	0.00%	2	8.33%	6	37.50%	8	19.05%
Number of members with one Filling Amalgam-One Surface, Primary or Permanent claim code (D2140)	0	0.00%	1	0.90%	1	0.66%	1	0.66%	3	0.64%
Member had one Filling Amalgam documented in dental record; one surface, primary or permanent not documented	N/A	N/A	1	100.00%	1	100.00%	1	100.00%	3	100.00%
No Fillings documented in dental record	N/A	N/A	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Number of members with one Filling Amalgam-Two Surfaces, Primary or Permanent claim code (D2150)	0	0.00%	0	0.00%	1	0.66%	0	0.00%	1	0.21%
Member had one Filling Amalgam documented in dental record; two surfaces, primary or permanent not documented	N/A	N/A	N/A	N/A	1	100.00%	N/A	N/A	1	100.00%
No Fillings documented in dental record	N/A	N/A	N/A	N/A	0	0.00%	N/A	N/A	0	0.00%

Preventive Services and Restorative Procedure Claims (n = 574 Members in Final Study Sample)	Infants and Toddlers (n = 59)		Preschool Children (n = 131)		School-Aged Children (n = 190)		Adolescents (n = 194)		Total (n = 574)	
Comprehensive Oral Evaluation claim code (D0150) (n = 466)	n = 52	88.14%	111	84.73%	152	80.00%	151	77.84%	466	81.18%
Number of members with one Filling Amalgam-Three Surfaces, Primary Or Permanent claim code (D2160)	0	0.00%	0	0.00%	1	0.66%	0	0.00%	1	0.21%
Member had one Filling Amalgam documented in dental record; three surfaces, primary or permanent, not documented	N/A	N/A	N/A	N/A	1	100.00%	N/A	N/A	1	100.00%
No Fillings documented in dental record	N/A	N/A	N/A	N/A	0	0.00%	N/A	N/A	0	0.00%
Number of Fillings Resin-One Surface, Anterior claims code (D2330) for one member	0	0.00%	0	0.00%	0	0.00%	2	1.32%	2	0.43%
Member had two Fillings Resin material Anterior documented in dental record; one surface not documented	N/A	N/A	N/A	N/A	N/A	N/A	2	100.00%	2	100.00%
No Fillings documented in dental record	N/A	N/A	N/A	N/A	N/A	N/A	0	0.00%	0	0.00%
Number of Filling Resin-Four or More Surfaces, Anterior claims code (D2335) for two members ¹⁵	0	0.00%	0	0.00%	0	0.00%	7	4.64%	7	1.50%
Member had Filling Resin, Anterior documented in dental record; four or more surfaces not documented	N/A	N/A	N/A	N/A	N/A	N/A	1	14.29%	1	14.29%
No fillings documented in dental record	N/A	N/A	N/A	N/A	N/A	N/A	6	85.71%	6	85.71%
Number of Filling Resin-One Surface, Posterior claims code (D2391) for twelve members	0	0.00%	1	0.90%	16	10.53%	4	2.65%	21	4.51%

¹⁵ One adolescent had one filling claim for this code that was documented in the dental record and one adolescent had 6 fillings claims with no fillings documented in the dental record.

Preventive Services and Restorative Procedure Claims (n = 574 Members in Final Study Sample)	Infants and Toddlers (n = 59)		Preschool Children (n = 131)		School-Aged Children (n = 190)		Adolescents (n = 194)		Total (n = 574)	
Comprehensive Oral Evaluation claim code (D0150) (n = 466)	n = 52	88.14%	111	84.73%	152	80.00%	151	77.84%	466	81.18%
Member had Filling Resin, posterior documented in dental record; one surface not documented ⁹	N/A	N/A	1	100.00%	15	93.75%	4	100.00%	20	95.24%
No Fillings documented in dental record Resin-One Surface, Posterior claim code (D2391)	N/A	N/A	0	0.00%	1	6.25%	0	0.00%	1	4.76%
Number of Filling Resin – Two Surfaces, Posterior claims code (D2392) for four members	0	0.00%	0	0.00%	4	2.63%	2	1.32%	6	1.29%
Member had Filling Resin, posterior documented in dental record; two surfaces not documented ⁹	N/A	N/A	N/A	N/A	3	75.00%	2	100.00%	5	83.33%
No fillings documented in dental record (D2392)	N/A	N/A	N/A	N/A	1	25.00%	0	0.00%	1	16.67%
Number of members with one Filling Resin – Four Or More Surfaces, Posterior claim code (D2394)	0	0.00%	0	0.00%	1	0.66%	0	0.00%	1	0.21%
Member had one Filling Resin, posterior documented in dental record; four or more surfaces not documented	N/A	N/A	N/A	N/A	1	100.00%	N/A	N/A	1	100.00%
No Fillings documented in dental record	N/A	N/A	N/A	N/A	0	00.00%	N/A	N/A	0	0.00%
Diagnostic imaging/X-rays	n = 52		n = 111		n = 152		n = 151		n = 466	
Total X-ray claims	6	11.54%	78	70.27%	227	149.34%	212	140.40%	523	112.23%
Total x-rays documented in dental record	6	100%	78	100.00%	224	98.68%	211	99.53%	519	99.24%
No X-rays documented in dental record	0	0.00%	0	0.00%	3	1.32%	1	0.47%	4	0.76%
Number of X-ray Intraoral Complete Image Series claims code (D0210) for four members	0	0.00%	0	0.00%	0	0.00%	4	2.65%	4	0.86%

Preventive Services and Restorative Procedure Claims (n = 574 Members in Final Study Sample)	Infants and Toddlers (n = 59)		Preschool Children (n = 131)		School-Aged Children (n = 190)		Adolescents (n = 194)		Total (n = 574)	
Comprehensive Oral Evaluation claim code (D0150) (n = 466)	n = 52	88.14%	111	84.73%	152	80.00%	151	77.84%	466	81.18%
Member had one X-ray Intraoral Complete Image Series documented in dental record	N/A	N/A	N/A	N/A	N/A	N/A	4	100.00%	4	100.00%
No X-rays documented in dental record	N/A	N/A	N/A	N/A	N/A	N/A	0	0.00%	0	0.00%
Number of X-ray Intraoral Periapical First Image claims code (D0220) ¹⁰	4	7.69%	25	22.52%	38	25.00%	17	11.26%	84	18.03%
Member had X-ray Intraoral Periapical First Image documented in dental record	4	100.00%	25	100.00%	38	100.00%	17	100.00%	84	100.00%
No X-rays documented in dental record	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Number of X-rays Intraoral Periapical each additional claims code (D0230)	2	3.85%	22	19.82%	28	18.42%	21	13.91%	73	15.67%
Member had X-ray Intraoral Periapical each additional documented in dental record	2	100.00%	22	100.00%	28	100.00%	21	100.00%	73	100.00%
No X-rays documented in dental record	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Number of members with one X-ray Bitewing-Single Image claim codes (D0270)	0	0.00%	0	0.00%	1	0.66%	0	0.00%	1	0.21%
Member had one X-ray Bitewing-Single Image documented in dental record	N/A	N/A	N/A	N/A	1	100.00%	N/A	N/A	1	100.00%
No X-rays documented in dental record	N/A	N/A	N/A	N/A	0	0.00%	N/A	N/A	0	0.00%
Number of X-rays Bitewing-Two Images claims code (D0272) ¹¹	0	0.00%	31	27.93%	96	63.16%	34	22.52%	161	34.55%
Member had X-ray documented in dental record ¹¹	N/A	N/A	31	100.00%	93	96.88%	33	97.06%	157	97.52%
No documentation of x-rays in dental record on exam DOS.	N/A	N/A	0	0.00%	3	3.13%	1	2.94%	4	2.48%

Preventive Services and Restorative Procedure Claims (n = 574 Members in Final Study Sample)	Infants and Toddlers (n = 59)		Preschool Children (n = 131)		School-Aged Children (n = 190)		Adolescents (n = 194)		Total (n = 574)	
Comprehensive Oral Evaluation claim code (D0150) (n = 466)	n = 52	88.14%	111	84.73%	152	80.00%	151	77.84%	466	81.18%
Number of members with one X-rays Bitewing-Four Images claim codes (D0274)	0	0.00%	0	0.00%	11	7.24%	67	44.37%	78	16.74%
Member had one X-ray Bitewing-Four Images documented in dental record	N/A	N/A	N/A	N/A	11	100.00%	67	100.00%	78	100.00%
No X-rays documented in dental record	N/A	N/A	N/A	N/A	0	0.00%	0	0.00%	0	0.00%
Number of members with one X-rays Panoramic Image claim codes (D0330)	0	0.00%	0	0.00%	53	34.87%	69	45.70%	122	26.18%
Member had one X-ray Panoramic Image documented in dental record	N/A	N/A	N/A	N/A	53	100.00%	69	100.00%	122	100.00%
No Diagnostic Imaging/X-rays documented in dental record	N/A	N/A	N/A	N/A	0	0.00%	0	0.00%	0	0.00%
Crown	n = 52		n = 111		n = 152		n = 151		n = 466	
Number of members with one Crown claim code (D2930)	0	0.00%	0	0.00%	1	0.66%	0	0.00%	1	0.21%
Member had Crown documented in dental record	N/A	N/A	N/A	N/A	1	100.00%	N/A	N/A	1	100.00%
No Crown documented in dental record	N/A	N/A	N/A	N/A	0	0.00%	N/A	N/A	0	0.00%
Therapeutic pulpotomy	n = 52		n = 111		n = 152		n = 151		n = 466	
Number of members with one Therapeutic Pulpotomy claim code (D3220)	0	0.00%	0	0.00%	1	0.66%	0	0.00%	1	0.21%
Member had Therapeutic Pulpotomy documented in dental record	N/A	N/A	N/A	N/A	1	100.00%	N/A	N/A	1	100.00%
No Therapeutic Pulpotomy documented in dental record	N/A	N/A	N/A	N/A	0	0.00%	N/A	N/A	0	0.00%
Pulp capping	n = 52		n = 111		n = 152		n = 151		n = 466	

Preventive Services and Restorative Procedure Claims (n = 574 Members in Final Study Sample)	Infants and Toddlers (n = 59)		Preschool Children (n = 131)		School-Aged Children (n = 190)		Adolescents (n = 194)		Total (n = 574)	
Comprehensive Oral Evaluation claim code (D0150) (n = 466)	n = 52	88.14%	111	84.73%	152	80.00%	151	77.84%	466	81.18%
Number of Pulp Capping claim codes (D3110) for one member ¹⁶	0	0.00%	0	0.00%	0	0.00%	2	1.32%	2	0.43%
Member had Two Pulp Cappings documented in dental record	N/A	N/A	N/A	N/A	N/A	N/A	2	100.00%	2	100.00%
No Pulp Cappings documented in dental record	N/A	N/A	N/A	N/A	N/A	N/A	0	0.00%	0	0.00%
Pain management	n = 52		n = 111		n = 152		n = 151		n = 466	
Number of members with Palliative Treatment of Dental Pain claim code (D9110)	0	0.00%	0	0.00%	1	0.66%	0	0.00%	1	0.21%
Member had dental pain management documented in dental record	N/A	N/A	N/A	N/A	1	100.00%	N/A	N/A	1	100.00%
No dental pain management documented in dental record	N/A	N/A	N/A	N/A	0	0.00%	N/A	N/A	0	0.00%
Number of members with General Anesthesia claim code (D9220)	0	0.00%	0	0.00%	0	0.00%	1	0.66%	1	0.21%
Member had anesthesia documented in dental record	N/A	N/A	N/A	N/A	N/A	N/A	1	100.00%	1	100.00%
No anesthesia documented in dental record	N/A	N/A	N/A	N/A	N/A	N/A	0	0.00%	0	0.00%
Number of members with Analgesia claim code (D9230)	0	0.00%	1	0.90%	4	2.63%	0	0.00%	5	1.07%
Member had analgesia documented in dental record	N/A	N/A	1	100.00%	4	100.00%	N/A	N/A	5	100.00%
No analgesia documented in dental record	N/A	N/A	0	0.00%	0	0.00%	N/A	N/A	0	0.00%
Oral hygiene instructions	n = 52		n = 111		n = 152		n = 151		n = 466	
Number of members with Oral Hygiene Instruction claim code (D1330)	1	1.92%	1	0.90%	0	0.00%	1	0.66%	3	0.64%

¹⁶ One adolescent member had two pulp capping claims submitted on the comprehensive exam DOS, and had 2 pulp capping procedures documented in the dental record.

Preventive Services and Restorative Procedure Claims (n = 574 Members in Final Study Sample)	Infants and Toddlers (n = 59)		Preschool Children (n = 131)		School-Aged Children (n = 190)		Adolescents (n = 194)		Total (n = 574)	
Comprehensive Oral Evaluation claim code (D0150) (n = 466)	n = 52	88.14%	111	84.73%	152	80.00%	151	77.84%	466	81.18%
Member with a D1330 claim submitted had Oral Hygiene Instruction documented in dental record	1	100.00%	1	100.00%	N/A	N/A	1	100.00%	3	100.00%
No Oral Hygiene Instruction documented in dental record for member with claim	0	0.00%	0	0.00%	N/A	N/A	0	0.00%	0	0.00%
Member had Oral Hygiene Instruction documented in dental record without a D1330 claim submitted	24	46.15%	49	44.14%	79	51.97%	61	40.40%	213	45.71%

¹ For adult prophylaxis, 35 adolescents specifically had adult prophylaxis documented (39.77%), 7 adolescents had child prophylaxis documented (7.95%), and 45 adolescents had prophylaxis as a general statement documented (51.14%) in the dental record; one adolescent member did not have dental record documentation of any prophylaxis statement to validate claim. ² For child prophylaxis, a total of 9 members did not have dental record documentation of any prophylaxis to validate claim; 1 infant, 6 school-age children, and 2 adolescents.

³ The one adolescent with an adult fluoride treatment claim did not have medical record documentation of any fluoride treatment statement.

⁴ One school-aged child and 2 adolescents had child fluoride documented in the dental record, and one adolescent had a general fluoride statement documented. One adolescent had two, Child Topical Fluoride Application claim codes (D1203) submitted on the exam DOS, but had only one application documented in the dental record.

⁵ None of the members with this claim had "excluding varnish" documented in the dental record: a total of 262 members (48 infants and toddler, 54 preschool children, 85 school-aged children and 75 adolescents) had a fluoride application as a general statement in the dental record, and a total of 97 members had "varnish" rather than "excluding varnish" documented in the dental record (35 preschool children, 44 school-aged children, and 18 adolescents). A total of 18 members with one Topical Fluoride Application claim code D1208_Exc. Varnish submitted did not have dental record documentation of any fluoride application statement.

⁶ One member (IPRO ID C88) had 2 sealants documented, but only one claim submitted.

⁷ One school-aged and one adolescent member had 4 or more sealants documented in the dental record, but only 3 claims submitted.

⁸ The one adolescent member with six -Fillings Resin-four or more surfaces, Anterior claim code (D2335) submitted, did not have any fillings documented in the dental record.

⁹ One school-aged child (IPRO ID A538) with one Filling Resin-one surface, posterior claim code (D2391) and with one Filling Resin-two surfaces, posterior claim code (D2392) submitted, did not have any fillings documented in the dental record.

¹⁰ For 2 members (IPRO IDS C47 and H190) the provider submitted 2 PA First codes, for the two documented periapical x-rays, rather than submitting one claim code for PA first and one claim code for the additional x-ray.

¹¹ Three school-aged children (IPRO IDs C55, P290, and P318) did not have any x-rays documented in the dental record; two school-aged children (IPRO IDs C50 and A549) had one image rather than two images documented in the dental record; and one school-aged child (IPRO ID W416) had an x-ray documented in a general statement, without the x-ray type specified. One adolescent (IPRO ID A596) did not have any x-rays documented in the dental record.

Brown: no dental record documentation to validate claim; dark blue: total claims and dental record validation; light blue: specific claim code validation within service and/or procedure type; light green: dental record documentation of interest.

Oral Exam Type/Periodic Oral Evaluation by Age Group

The AAPD recommends preventive care visits at least every six months, and recommends that the components of a periodic exam closely follow those of a comprehensive exam (Table 6). It should be noted that Kentucky DMS Dental Fee Schedule in effect for the study sample does not include the Periodic Oral Evaluation (CDT-D0120) claim code, whereas the current DMS Dental Fee Schedule does include this code, and states that it should be limited to "1 per recipient per 12 months."

Overall, 91 (15.85%) study sample members had a claim code submitted for a Periodic Oral Exam (CDT-D0120), and 73.63% of these exam were documented as a periodic exam by the dental provider.¹⁷ Among these members, the following dental exam components were documented in the dental record on the exam DOS:

Extraoral/Oral Cavity/Periodontal/Occlusion Exam

Overall, all of the infants and toddlers as well as all the preschool children had an oral cavity exam documented in the dental record, as did all except 2 school-aged children and 2 adolescents.

Health History Obtained

Only one school-aged child and one adolescent had none of the health history elements documented (2.20% overall), while in total, 81.32% had a medical history review documented, including all of the infants and toddlers, 90.48% of the preschool children, 75.68% of the school-aged children and 77.78% of the adolescents. Dental home status was also well documented overall (82.42%), including for infants and toddlers (66.67%), preschool children (80.95%), school-aged children (89.19%), and for adolescents (77.78%).

Chief Complaint

Overall, exam (84.62%) and prophylaxis (82.42%), respectively, were the most frequently documented reasons for the dental visit, while 20.88% of members overall had "recall" documented as the visit reason, and only 4 (4.40%) members did not have the reason for the visit documented.

Clinical Exam Components

Overall, all of the infants and toddlers as well as all the preschool children had at least one clinical exam component documented in the dental record, as did all except 2 school-aged children and 2 adolescents. Overall, 92.31% of members had documentation concerning dentition, i.e., color or form, including all the infants and toddler as well as all the preschool children, 89.19% of the school-aged children and 88.89% of the adolescents.

Caries Risk Assessment

Overall, 76.92% of members had at least one element of a caries risk assessment documented, including 83.33% of infants and toddlers, 66.67% of preschool children, 75.68% of school-aged children, and 85.19% of adolescents. The majority (58.24%) of members overall did not have the level of risk documented, while almost 10% overall were documented to have a high caries risk, including one preschool child, five school-aged children and three adolescents. The biological, protective, and clinical findings caries risk elements were not frequently documented overall (93.41%, 96.70%, and 63.74%, respectively), while 28.57% of all members had visible cavities documented.

¹⁷ Three members IPRO IDS C95, P249 and P314, had both a comprehensive and a periodic exam claim submitted on the same DOS.
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Fluoride Assessment

Overall, only one preschool child and two school-aged children had a fluoride assessment documented (3.30%), and only the preschool child had the fluoride source documented.

Prophylaxis

Overall, nearly all (97.80%) members with a periodic exam claim submission had documentation of prophylaxis in the dental record, including all the infants and toddlers as well as all the adolescents; only one preschool and one school-aged child did not have prophylaxis documented in the dental record.

Topical Fluoride Application

Topical fluoride application was documented for the majority (82.42%) of members overall, including 66.67% of infants and toddlers, 80.95% of preschool children, 86.49% of school-aged children, and 81.48% of adolescents.

Behavioral Assessment

Just over one-third (35.16%) of all members overall did not have a behavior assessment documented, and only one infant or toddler, and two preschool children were assessed as non-cooperative.

Anticipatory Guidance

Overall, 81.32% of members with a periodic exam claim had no nutrition or diet counseling documented, and in total, only 17 (18.68%) members had general nutrition guidance documented, including 33.33% of infants and toddlers, 28.57% of preschool children, 16.22% of school-aged children and 11.11% of adolescents. Overall, only one adolescent had general safety counseling documented. The majority (74.73%) of members overall had general oral hygiene counseling documented, including 83.33% of infants and toddlers, 85.71% of preschool children, 67.57% of school-aged children and 74.07% of adolescents. A total of 11 (12.09%) members were counseled to floss daily, 6 (6.59%) members were counseled to brush twice daily, and 1 (1.10%) adolescent was advised to use a soft toothbrush.

Claim Validation

Overall, a Periodic Oral Evaluation (CDT-D0120) claim code was submitted for 15.85% (91/574) of the study sample (Table 6). A periodic dental exam should minimally include documentation of at least one component of a health history, such as a review of past medical history, at least one clinical exam component, such as dentition, a chief complaint or reason for the exam, and prophylaxis. A review of the dental records for those members for whom the periodic exam claim code was submitted shows the majority (87.91%) overall, had dental record documentation meeting the minimum criteria for a periodic exam, including 100% of infants and toddlers, 95.24% of preschool children, 86.49% of school-aged children, and 81.48% of adolescents.¹⁸

¹⁸ One Aetna/Coventry member (age 12 years), had both a comprehensive exam claim and a periodic exam claim submitted on the same exam DOS, and this member had all components of a comprehensive/periodic exam documented in the dental record. Claims data from IPRO's Data Warehouse show the comprehensive exam claim was paid and the periodic exam claim was not paid. This member was removed from the periodic exam validation above, i.e., the number of adolescents with "all elements of a periodic exam" was reduced from 23 to 22.

Table 6: Oral Exam/Periodic Oral Evaluation Dental Record Documentation by Age Group

Periodic Oral Evaluation (n = 574 Members in Final Study Sample)	Infants and Toddlers (n = 59)		Preschool Children (n = 131)		School-Aged Children (n = 190)		Adolescents (n = 194)		Total (n = 574)	
	Periodic Oral Evaluation claim code (D0120) (n = 91)	6	1.17%	21	16.03%	37	19.37%	27	13.92%	91
Identified by dental provider as a periodic oral evaluation in dental record	4	66.67%	15	71.43%	30	81.08%	18	66.67%	67	73.63%
Extraoral/Oral cavity/Periodontal/Occlusion exam	n = 6		n = 21		n = 37		n = 27		n = 91	
Yes	6	100.00%	21	100.00%	35	94.59%	25	92.59%	87	95.60%
No	0	0.00%	0	0.00%	2	5.41%	2	7.41%	4	4.40%
Health history obtained	n = 6		n = 21		n = 37		n = 27		n = 91	
Medical history reviewed	6	100.00%	19	90.48%	28	75.68%	21	77.78%	74	81.32%
Positive medical issue	1	16.67%	3	14.29%	7	18.92%	4	14.81%	15	16.48%
Hospitalization/surgery	1	16.67%	5	23.81%	6	16.22%	4	14.81%	16	17.58%
Immunization status	0	0.00%	2	9.52%	0	0.00%	0	0.00%	2	2.20%
Allergies status	3	50.00%	12	57.14%	12	32.43%	12	44.44%	39	42.86%
Medication status	3	50.00%	10	47.62%	10	27.03%	8	29.63%	31	34.07%
Antibiotic prophylaxis	0	0.00%	1	4.76%	0	0.00%	0	0.00%	1	1.10%
Tobacco use assessment	0	0.00%	4	19.05%	2	5.41%	7	25.93%	13	14.29%
Positive tobacco use	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Past dental history	0	0.00%	5	23.81%	6	16.22%	8	29.63%	19	20.88%
Dental home status	4	66.67%	17	80.95%	33	89.19%	21	77.78%	75	82.42%
No dental home documented	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
None	0	0.00%	0	0.00%	1	2.70%	1	3.70%	2	2.20%
Chief complaint	n = 6		n = 21		n = 37		n = 27		n = 91	
Pain	0	0.00%	0	0.00%	1	2.70%	0	0.00%	1	1.10%
Initial visit/establish dental home	1	16.67%	2	9.52%	0	0.00%	0	0.00%	3	3.30%
Acute trauma	0	0.00%	0	0.00%	0	0.00%	0	3.70%	0	0.00%
Second opinion/referral	0	0.00%	0	0.00%	0	0.00%	1	3.70%	1	1.10%
Cleaning/prophylaxis	4	66.67%	17	80.95%	31	83.78%	23	85.19%	75	82.42%
Restorative care	0	0.00%	0	0.00%	1	2.70%	2	7.41%	3	3.30%
Recall	2	33.33%	5	23.81%	5	13.51%	7	25.93%	19	20.88%
Swelling	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Not documented	0	0.00%	0	0.00%	3	8.11%	1	3.70%	4	4.40%
Exam	3	50.00%	19	90.48%	31	83.78%	24	88.89%	77	84.62%

Periodic Oral Evaluation (n = 574 Members in Final Study Sample)	Infants and Toddlers (n = 59)		Preschool Children (n = 131)		School-Aged Children (n = 190)		Adolescents (n = 194)		Total (n = 574)	
Periodic Oral Evaluation claim code (D0120) (n = 91)	6	1.17%	21	16.03%	37	19.37%	27	13.92%	91	15.85%
Other	0	0.00%	2	9.52%	1	2.70%	0	0.00%	3	3.30%
None	1	16.67%	0	0.00%	1	2.70%	0	0.00%	2	2.20%
Clinical exam components	n = 6		n = 21		n = 37		n = 27		n = 91	
Normal occlusion (bite test)	3	50.00%	10	47.62%	12	32.43%	11	40.74%	36	39.56%
Examine maxillary incisors	1	16.67%	5	23.81%	9	24.32%	13	48.15%	28	30.77%
Upper/Lower lip/Buccal mucosa	5	83.33%	16	76.19%	25	67.57%	19	70.37%	65	71.43%
Plaque accumulation/Gum line exam	4	66.67%	13	61.90%	25	67.57%	24	88.89%	66	72.53%
Pressure point tenderness	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Fissures	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Palate	5	83.33%	14	66.67%	27	72.97%	21	77.78%	67	73.63%
Tongue	5	83.33%	15	71.43%	28	75.68%	22	81.48%	70	76.92%
Oropharynx	4	66.67%	14	66.67%	27	72.97%	22	81.48%	67	73.63%
Dental exam (color, form, number)/Caries	6	100.00%	21	100.00%	33	89.19%	24	88.89%	84	92.31%
TMJ	4	66.67%	9	42.86%	16	43.24%	15	55.56%	44	48.35%
Neck/Lymph	3	50.00%	8	38.10%	14	37.84%	18	66.67%	43	47.25%
None of the above	0	0.00%	0	0.00%	2	5.41%	2	7.41%	4	4.40%
Caries risk assessment	n = 6		n = 21		n = 37		n = 27		n = 91	
No	1	16.67%	7	33.33%	9	24.32%	4	14.81%	21	23.08%
Yes	5	83.33%	14	66.67%	28	75.68%	23	85.19%	70	76.92%
Yes, high risk	0	0.00%	1	4.76%	5	13.51%	3	11.11%	9	9.89%
Yes, moderate risk	1	16.67%	1	4.76%	1	2.70%	3	11.11%	6	6.59%
Yes, low risk	0	0.00%	1	4.76%	1	2.70%	0	0.00%	2	2.20%
Yes, risk level not documented	4	66.67%	11	52.38%	21	56.76%	17	62.96%	53	58.24%
Elements of caries risk documented	n = 6		n = 21		n = 37		n = 27		n = 91	
Biological										
Caregiver has active caries	0	0.00%	0	0.00%	1	2.70%	0	0.00%	1	1.10%
Low socioeconomic status	0	0.00%	0	0.00%	1	2.70%	0	0.00%	1	1.10%
Child has >3 sugar-containing snacks or beverages/day	0	0.00%	1	4.76%	0	0.00%	1	3.70%	2	2.20%
Put to bed with a bottle	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Child has special health care needs	1	16.67%	0	0.00%	1	2.70%	1	3.70%	3	3.30%

Periodic Oral Evaluation (n = 574 Members in Final Study Sample)	Infants and Toddlers (n = 59)		Preschool Children (n = 131)		School-Aged Children (n = 190)		Adolescents (n = 194)		Total (n = 574)	
Periodic Oral Evaluation claim code (D0120) (n = 91)	6	1.17%	21	16.03%	37	19.37%	27	13.92%	91	15.85%
Child is a recent immigrant	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
None	5	83.33%	20	95.24%	35	94.59%	25	92.59%	85	93.41%
Protective										
Non-fluoride water source	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Poor oral hygiene	0	0.00%	1	4.76%	2	5.41%	0	0.00%	3	3.30%
No dental home/care	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
No topical fluoride history	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
None	6	100.00%	20	95.24%	35	94.59%	27	100.00%	88	96.70%
Clinical findings										
White spot lesions/enamel defects	0	0.00%	0	0.00%	0	0.00%	1	3.70%	1	1.10%
Visible cavities/fillings	1	16.67%	5	23.81%	11	29.73%	9	33.33%	26	28.57%
Plaque on teeth	1	16.67%	1	4.76%	2	5.41%	3	11.11%	7	7.69%
Elevated <i>Mutans streptococci</i> levels	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Defective restorations	0	0.00%	1	4.76%	0	0.00%	0	0.00%	1	1.10%
Wearing an intraoral appliance	0	0.00%	0	0.00%	1	2.70%	0	0.00%	1	1.10%
None	4	66.67%	15	71.43%	24	64.86%	15	55.56%	58	63.74%
Fluoride assessment documented	n = 6		n = 21		n = 37		n = 27		n = 91	
Yes	0	0.00%	1	4.76%	2	5.41%	0	0.00%	3	3.30%
No	6	100.00%	20	95.24%	35	94.59%	27	100.00%	88	96.70%
Household fluoridated water source	n = 6		n = 21		n = 37		n = 27		n = 91	
Yes	0	0.00%	1	4.76%	0	0.00%	0	0.00%	1	1.10%
No	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Fluoride supplements	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Unable to determine	6	100.00%	20	95.24%	37	100.00%	27	100.00%	90	98.90%
Prophylaxis	n = 6		n = 21		n = 37		n = 27		n = 91	
Adult prophylaxis	0	0.00%	1	4.76%	0	0.00%	2	7.41%	3	3.30%
Child prophylaxis	6	100.00%	19	90.48%	36	97.30%	17	62.96%	78	85.71%
Prophylaxis	0	0.00%	0	0.00%	0	0.00%	8	29.63%	8	8.79%
Prophylaxis total	6	100.00%	20	95.24%	36	97.30%	27	100.00%	89	97.80%
Topical fluoride application	n = 6		n = 21		n = 37		n = 27		n = 91	
Adult topical application	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%

Periodic Oral Evaluation (n = 574 Members in Final Study Sample)	Infants and Toddlers (n = 59)		Preschool Children (n = 131)		School-Aged Children (n = 190)		Adolescents (n = 194)		Total (n = 574)	
Periodic Oral Evaluation claim code (D0120) (n = 91)	6	1.17%	21	16.03%	37	19.37%	27	13.92%	91	15.85%
Child topical application	1	16.67%	5	23.81%	3	8.11%	1	3.70%	10	10.99%
Topical fluoride application (general statement/not specified)	3	50.00%	12	57.14%	29	78.38%	21	77.78%	65	71.43%
Topical fluoride application total	4	66.67%	17	80.95%	32	86.49%	22	81.48%	75	82.42%
Behavioral assessment	n = 6		n = 21		n = 37		n = 27		n = 91	
Cooperative	3	50.00%	16	76.19%	25	67.57%	12	44.44%	56	61.54%
Non-cooperative	1	16.67%	2	9.52%	0	0.00%	0	0.00%	3	3.30%
Not documented	2	33.33%	3	14.29%	12	32.43%	15	55.56%	32	35.16%
Anticipatory guidance	n = 6		n = 21		n = 37		n = 27		n = 91	
Nutrition and diet counseling										
Eat healthy snacks	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Eat less-to-no junk food or candy	0	0.00%	1	4.76%	2	5.41%	0	0.00%	3	3.30%
No soda/ sugar drinks	0	0.00%	0	0.00%	1	2.70%	0	0.00%	1	1.10%
Xylitol	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
No sugar drinks in bed	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Wean off bottle	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Less-to-no-juice intake	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Drink tap water/only water in sippy cup	0	0.00%	1	4.76%	1	2.70%	0	0.00%	2	2.20%
General counseling	2	33.33%	6	28.57%	6	16.22%	3	11.11%	17	18.68%
None	4	66.67%	15	71.43%	31	83.78%	24	88.89%	74	81.32%
Safety counseling										
Mouth guard during sports	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Tobacco avoidance counseling	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
General counseling	0	0.00%	0	0.00%	0	0.00%	1	3.70%	1	1.10%
None	6	100.00%	21	100.00%	37	100.00%	26	96.30%	90	98.90%
Oral hygiene – general counseling										
Use fluoride toothpaste	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
No sharing of utensils	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Fluoridated water source or supplement	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
General counseling	5	83.33%	18	85.71%	25	67.57%	20	74.07%	68	74.73%
Use soft toothbrush	0	0.00%	0	0.00%	0	0.00%	1	3.70%	1	1.10%

Periodic Oral Evaluation (n = 574 Members in Final Study Sample)	Infants and Toddlers (n = 59)		Preschool Children (n = 131)		School-Aged Children (n = 190)		Adolescents (n = 194)		Total (n = 574)	
Periodic Oral Evaluation claim code (D0120) (n = 91)	6	1.17%	21	16.03%	37	19.37%	27	13.92%	91	15.85%
Avoidance of bottle in bed	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Establish a dental home by the age of 12 month by 1st tooth	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Brush twice daily	0	0.00%	1	4.76%	4	10.81%	1	3.70%	6	6.59%
Use clean pacifier	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
If still using bottle, offer only water	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Flossing once daily flossing	0	0.00%	2	9.52%	5	13.51%	4	14.81%	11	12.09%
Regular visits with dentist (twice yearly)	0	0.00%	0	0.00%	0	0.00%	0	14.81%	0	0.00%
Dental treatments for parents	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Topical fluoride treatments	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
None	1	16.67%	3	14.29%	10	27.03%	7	25.93%	21	23.08%
Periodic Oral Evaluation claim code (D0120)	n = 6		n = 21		n = 37		n = 27		n = 91	
Percent of dental records with all elements of a periodic exam ^{1,2}	6	100.00%	20	95.24%	32	86.49%	22	81.48%	80	87.91%

¹ A Periodic exam includes the following components: At least one component documented from the Health History Section; at least one component documented from the Chief Complaint Section; At least one component documented from the Clinical Exam Components Section; Prophylaxis documented.

² One Aetna/Coventry member (age 12), had both a comprehensive exam claim and a periodic exam claim submitted on the same exam DOS, and this member had all components of a comprehensive/periodic exam documented in the dental record. Claims data from IPRO's Data Warehouse show the comprehensive exam claim was paid and the periodic exam claim was not paid. This member was removed from the periodic exam validation above, i.e., the number of adolescents with "all elements of a periodic exam" was reduced from 23 to 22.

Dark blue: total claims and dental record validation.

Preventive Services and Diagnostic and Restorative Procedures Codes submitted for Members with a Periodic Oral Exam by Age Group

None of the members, for whom a Periodic Oral Evaluation (CDT-D0120) claim was submitted, had a service or procedure claim submitted on the exam DOS for pulp capping. Members for whom a Periodic Oral Exam (CDT-D0120) claim was submitted also had claims for the following preventive services and diagnostic and restorative procedures submitted on the exam DOS (Table 7):

Prophylaxis

All but one member with a periodic exam claim also had prophylaxis claim submitted on the exam DOS; two adolescents had both adult prophylaxis and child prophylaxis claims submitted on the exam DOS. An Adult Prophylaxis claim (CDT-1110) was submitted for 13 (14.29%) members for whom a periodic exam code was submitted, and all but one preschool child were adolescents. The one preschool child and two adolescents had adult prophylaxis documented in the dental record; two of the remaining 10 adolescents had child prophylaxis documented and eight had a general prophylaxis statement in the dental record. It should be noted that two of these adolescents additionally had a child prophylaxis claim submitted on the exam DOS, but only the adult prophylaxis claim was documented in the dental record. In total, 79 (86.81%) members had child prophylaxis claims submitted with a periodic exam claim code, including 6 infants and toddlers, 19 preschool children, 37 school-aged children and 17 adolescents. All but one school-aged child had child prophylaxis documented in the dental record, and as noted above, two adolescents had both adult prophylaxis and child prophylaxis claims submitted; adult prophylaxis was documented in the dental record.

Fluoride Treatments

Overall, 93.41% of members with a periodic exam claim also had Fluoride Application claims submitted on the exam DOS. None of the members with a periodic exam claim code submitted had an Adult Topical Application of Fluoride claim (CDT-D1204) submitted on the exam DOS. Only one adolescent had a Child Topical Fluoride claim (CDT-D1203) submitted on the exam DOS and this member had child fluoride application documented in their dental record. In total 84 (92.31%) members had a Topical Fluoride Application Excluding Varnish claim (CDT-D1208) submitted on the exam DOS—none of these member had Topical Fluoride Application “Excluding Varnish” documented in the dental record; the majority (76.19%) had a general fluoride treatment statement, or abbreviation (e.g., Fl. Tx.) documented; 11.90% had a “fluoride *varnish*” treatment documented, and 11.90% had child fluoride treatment documented in the dental record. Only one school-aged child had a Topical Fluoride Varnish (CDT-D1206) claim submitted and topical fluoride “varnish” was documented in the dental record for this member.

Sealants

Dental sealant codes are submitted for each tooth treated. Overall, six members (6.6%) who had a periodic oral exam claim code submitted had a total of 22 claims submitted for Sealants (CDT-D1351) on the exam DOS. All of these members had at least the same number of sealants documented in the dental record as the number of sealant claims submitted, i.e., some members had more sealants documented than claims submitted but none had less.

Extractions

Only one school-aged child (1.10% of members with a periodic exam) had a claim submitted for an Extraction of Coronal Remnants (CDT-D7111), and this child had an extraction documented in the dental record.

Fillings

Only two members had fillings claims submitted on a periodic exam DOS. One school-aged child had a claim submitted for an Amalgam-One Surface, Primary or Permanent Filling (CDT-D2140) which was not documented in the dental record. One adolescent had two claims for Resin-One Surface, Anterior Fillings (CDT-D2330), and this adolescent had two fillings, resin-based composite documented in dental record; the filling locations and the surface was not documented in dental record.

X-Rays

In total, 115 x-ray claims were submitted on the same DOS as a member's periodic oral exam claim submission. Some members had multiple x-ray claims submitted on that same DOS. All the members with x-ray claims had documentation of the type and number of images in the dental record corresponding to the specific x-ray claim code except the following: for two preschool children, the provider submitted two Periapical First Image claims (CDT-D0220), but for both members an occlusal x-ray was documented in the dental record. It should be noted that the claim code for occlusal x-rays (CDT-D0240) is not on the current Kentucky DMS Dental Fee Schedule or on the Schedule in effect for the study sample. Two preschool members also had occlusal x-rays documented in the dental record although claims were submitted for Periapical, Each Additional (CDT-D0230). One adolescent had an x-ray claim submitted for one Bitewing-Two Images (CDT-D0272), but this member did not have any x-rays documented in the dental record.

Crowns

Only one school-aged child had three claims submitted for crowns on the periodic exam DOS and this member had three crown procedures documented in the dental record.

Therapeutic Pulpotomy

Only one school-aged child had a claim submitted for a Therapeutic Pulpotomy (CDT-D3220) on the periodic exam DOS and this member had the therapeutic pulpotomy treatment documented in the dental record.

Oral Hygiene Instruction

Overall, 50 members had oral hygiene instruction documented in the dental record on the periodic exam DOS, but only 2 adolescents had a claim submitted for Oral Hygiene Instruction (CDT-D1330) on the exam DOS; both adolescents had oral hygiene instruction documented in the dental record.

Pain Management

As noted earlier, neither the current Kentucky DMS Dental Fee Schedule, nor the one in effect for members in the study sample, list the claim code for an Inhaled or Intravenous Analgesia, Anti-anxiety Medication (CDT-D9230), although one school-aged child and one adolescent had this procedure claim submitted on the periodic exam DOS; both the school-aged child and the adolescent had dental record documentation of analgesia.

Table 7: Preventive and Restorative Procedures Claims/Documented Services for Members with a Periodic Oral Exam by Age Group

Members with Periodic Oral Exam Claim Preventive and Restorative Procedure Claims (Study Sample n = 574)	Infants and Toddlers (n = 59)		Preschool Children (n = 131)		School-Aged Children (n = 190)		Adolescents (n = 194)		Total (n = 574)	
Preventive and Restorative Procedure Claims for Members with Periodic Oral Exam Claim (n= 91)	n = 6	10.17%	n = 21	16.03%	n = 37	19.47%	n = 27	13.92%	n = 91	15.85%
Prophylaxis/Dental cleaning	n = 6		n = 21		n = 37		n = 27		n = 91	
Total Prophylaxis/Dental claims (D1110 and D1120)	6	100.00 %	20	95.24%	37	100.00 %	29	107.41 %	92	101.10 %
Total Prophylaxis/Dental cleaning documented in dental record	6	100.00 %	20	100.00 %	36	97.30%	27	93.10%	89	96.74%
No Prophylaxis/Dental cleaning documented in dental record	0	0.00%	0	0.00%	1	2.70%	2	6.90%	3	3.26%
Number of Members with Adult Prophylaxis/Dental cleaning claim code (D1110) ¹	0	0.00%	1	4.76%	0	0.00%	12	44.44%	13	14.29%
Member had Prophylaxis documented in dental record ¹	N/A	N/A	1	100.00 %	N/A	N/A	12	100.00 %	13	100.00 %
No Prophylaxis documented in dental record ¹	N/A	N/A	0	0.00%	N/A	N/A	0	0.00%	0	0.00%
Member had one Child Prophylaxis/Dental cleaning claim code (D1120) ^{J1}	6	100.00 %	19	90.48%	37	100.00 %	17	62.96%	79	86.81%
Member had Child Prophylaxis documented in dental record ²	6	100.00 %	19	100.00 %	36	97.30%	15	88.24%	76	96.20%
No Prophylaxis/Dental cleaning documented in dental record	0	0.00%	0	0.00%	1	2.70%	2	11.76%	3	3.80%
Topical application fluoride/treatment	n = 6		n = 21		n = 37		n = 27		n = 91	
Total Fluoride Application claims (D1203, 1208)	5	83.33%	19	90.48%	36	97.30%	25	92.59% %	85	93.41%
Total Fluoride Applications documented in dental record	5	100.00 %	19	100.00 %	36	100.00 %	25	100.00 %	85	100.00 %
No Fluoride Application statement in dental record	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Number of members with one Child Topical Fluoride Application claim code (D1203)	0	0.00%	0	0.00%	0	0.00%	1	3.70%	1	1.10%
Member had one Child Topical Fluoride Application documented in dental record	N/A	N/A	N/A	N/A	N/A	N/A	1	100.00 %	1	100.00 %
No Fluoride Application statement in dental record	N/A	N/A	N/A	N/A	N/A	N/A	0	0.00%	0	0.00%
Number of members with one Topical Fluoride Application claim code (D1208_Exc. Varnish)	5	83.33%	19	90.48%	36	97.30%	24	88.89%	84	92.31%

Members with Periodic Oral Exam Claim Preventive and Restorative Procedure Claims (Study Sample n = 574)	Infants and Toddlers (n = 59)		Preschool Children (n = 131)		School-Aged Children (n = 190)		Adolescents (n = 194)		Total (n = 574)	
Preventive and Restorative Procedure Claims for Members with Periodic Oral Exam Claim (n= 91)	n = 6	10.17%	n = 21	16.03%	n = 37	19.47%	n = 27	13.92%	n = 91	15.85%
Member had Topical Application Fluoride/ Treatment documented in dental record ¹⁹	5	100.00 %	19	100.00 %	36	100.00 %	24	100.00 %	84	100.00 %
No Topical Fluoride Application documented in dental record	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Topical fluoride varnish	n = 6		n = 21		n = 37		n = 27		n = 91	
Number of members with one Topical Fluoride Varnish claim code (D1206)	0	0.00%	0	0.00%	1	2.70%	0	0.00%	1	1.10%
Member had one Topical Fluoride Varnish documented in dental record	N/A	N/A	N/A	N/A	1	100.00 %	N/A	N/A	1	100.00 %
No Topical Fluoride Varnish documented in dental record	N/A	N/A	N/A	N/A	0	0.00%	N/A	N/A	0	0.00%
Dental sealants (per tooth)	n = 6		n = 21		n = 37		n = 27		n = 91	
Total number of Sealants claim codes (D1351) for six members	0	0.00%	0	0.00%	20	54.05%	2	7.41%	22	24.18%
Total Sealants documented in dental record	N/A	N/A	N/A	N/A	20	100.00 %	2	100.00 %	22	100.00 %
No Dental Sealants documented in dental record	N/A	N/A	N/A	N/A	0	0.00%	0	0.00%	0	0.00%
Extractions	n = 6		n = 21		n = 37		n = 27		n = 91	
Number of members with one Extractions of Coronal Remnants claim code (D7111)	0	0.00%	0	0.00%	1	2.70%	0	0.00%	1	1.10%
Member had one Extraction of Coronal Remnants documented in dental record	N/A	N/A	N/A	N/A	1	100.00 %	0	0.00%	1	100.00 %
No Extractions documented in dental record	N/A	N/A	N/A	N/A	0	0.00%	N/A	N/A	0	0.00%
Fillings	n = 6		n = 21		n = 37		n = 27		n = 91	
Total Fillings Claims (D2140 and D2330) for two members	0	0.00%	0	0.00%	1	2.70%	2	7.41%	3	3.00%
Total Fillings documented in dental record	N/A	N/A	N/A	N/A	0	0.00%	2	100.00 %	2	66.67%

¹⁹ None of the 84 members with a Topical Fluoride Application Excluding Varnish claim (CDT-D1208), including 24 adolescents, 36 school-aged children, 19 preschool children and 5 infants and toddlers had “excluding varnish” documented in the dental record. Of the 84, 64 members in total had a general fluoride treatment statement (21, adolescents, 29 school-aged children, 12 preschool children, and 2 infants and toddlers), 10 members in total had “fluoride varnish” documented and 10 members had “child” fluoride documented.

Members with Periodic Oral Exam Claim Preventive and Restorative Procedure Claims (Study Sample n = 574)	Infants and Toddlers (n = 59)		Preschool Children (n = 131)		School-Aged Children (n = 190)		Adolescents (n = 194)		Total (n = 574)	
Preventive and Restorative Procedure Claims for Members with Periodic Oral Exam Claim (n= 91)	n = 6	10.17%	n = 21	16.03%	n = 37	19.47%	n = 27	13.92%	n = 91	15.85%
No Fillings documented in dental record	N/A	N/A	N/A	N/A	1	100.00 %	0	0.00%	1	33.33%
Fillings Amalgam-One Surface, Primary or Permanent claim code (D2140)	0	0.00%	0	0.00%	1	2.70%	0	0.00%	1	1.10%
Member had one Filling Amalgam material documented in dental record; (one surface/primary or permanent not documented in dental record) ⁴	N/A	N/A	N/A	N/A	0	0.00%	N/A	N/A	0	0.00%
No Fillings documented in dental record	N/A	N/A	N/A	N/A	1	100.00 %	N/A	N/A	1	100.00 %
Number of Fillings Resin One Surface, Anterior claim code (D2330) for one member	0	0.00%	0	0.00%	0	0.00%	2	7.41%	2	2.20%
Member had two Fillings, Resin-Based composite documented in dental record; location and one surface not documented in dental record	N/A	N/A	N/A	N/A	N/A	N/A	2	100.00 %	2	100.00 %
No Fillings documented in dental record	N/A	N/A	N/A	N/A	N/A	N/A	0	0.00%	0	0.00%
Diagnostic imaging/X-Rays	n = 6		n = 21		n = 37		n = 27		n = 91	
Total Diagnostic imaging/X-rays	3	50.00%	27	128.57 %	56	151.35 %	29	107.41 %	115	126.38 %
Total X-rays documented in dental record	3	100.00 %	27	100.00 %	56	100.00 %	28	96.55%	114	99.13%
No X-rays documented in dental record	0	0.00%	0	0.00%	0	0.00%	1	3.45%	1	0.87%
Number of members with one X-rays Intraoral Periapical First Image claim codes (D0220)	1	16.67%	10	47.62%	10	27.03%	2	7.41%	23	25.27%
Member had one X-ray Intraoral Periapical First Image documented in dental record ⁵	1	100.00 %	10	100.00 %	10	100.00 %	2	100.00 %	23	100.00 %
No X-rays documented in dental record ⁵	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Number of X-ray Intraoral Periapical each additional codes (D0230) claims for 21 members	1	16.67%	10	47.62%	11	29.73%	0	0.00%	22	24.18%
Member had X-ray Intraoral Periapical each additional documented in the dental record ⁵	1	100.00 %	10	100.00 %	11	100.00 %	N/A	N/A	22	100.00 %
No X-rays documented in dental record ⁵	0	0.00%	0	0.00%	0	0.00%	N/A	N/A	0	0.00%
Number of members with one X-rays Bitewing-Two Images claim codes (D0272) ⁶	1	16.67%	7	33.33%	24	64.86%	12	44.44%	44	48.35%

Members with Periodic Oral Exam Claim Preventive and Restorative Procedure Claims (Study Sample n = 574)	Infants and Toddlers (n = 59)		Preschool Children (n = 131)		School-Aged Children (n = 190)		Adolescents (n = 194)		Total (n = 574)	
Preventive and Restorative Procedure Claims for Members with Periodic Oral Exam Claim (n= 91)	n = 6	10.17%	n = 21	16.03%	n = 37	19.47%	n = 27	13.92%	n = 91	15.85%
Member had one X-ray Bitewing-Two Images documented in the dental record ⁶	1	100.00 %	7	100.00 %	24	100.00 %	11	91.67%	43	97.73%
No X-rays documented in dental record	0	0.00%	0	0.00%	0	0.00%	1	8.33%	1	2.27%
Number of members with one X-rays Bitewing-Four Images claim codes (D0274)	0	0.00%	0	0.00%	4	10.81%	7	25.93%	11	12.09%
Member had one x-ray Bitewing Four Images documented in the dental record	N/A	N/A	N/A	N/A	4	100.00 %	7	100.00 %	11	100.00 %
No X-rays documented in dental record	N/A	N/A	N/A	N/A	0	0.00%	0	0.00%	0	0.00%
Number of members with one X-rays Panoramic Image claim codes (D0330)	0	0.00%	0	0.00%	7	18.92%	8	29.63%	15	16.48%
Member had one X-ray Panoramic Image documented in the dental record	N/A	N/A	N/A	N/A	7	100.00 %	8	100.00 %	15	100.00 %
No Diagnostic Imaging/X-rays documented in dental record	N/A	N/A	N/A	N/A	0	0.00%	0	0.00%	0	0.00%
Crown	n = 6		n = 21		n = 37		n = 27		n = 91	
Number of Crown claims code (D2930) for one member	0	0.00%	0	0.00%	3	8.11%	0	0.00%	3	3.30%
Member had 3 Crowns documented in dental record	N/A	N/A	N/A	N/A	3	100.00 %	N/A	N/A	3	100.00 %
No Crowns documented in dental record	N/A	N/A	N/A	N/A	0	0.00%	N/A	N/A	0	0.00%
Therapeutic pulpotomy	n = 6		n = 21		n = 37		n = 27		n = 91	
Number of members with one Therapeutic Pulpotomy claim code (D3220)	0	0.00%	0	0.00%	1	2.70%	0	0.00%	1	1.10%
Member had Therapeutic Pulpotomy documented in dental record	N/A	N/A	N/A	N/A	1	100.00 %	N/A	N/A	1	100.00 %
No Therapeutic Pulpotomy documented in dental record	N/A	N/A	N/A	N/A	0	0.00%	N/A	N/A	0	0.00%
Oral Hygiene Instructions	n = 6		n = 21		n = 37		n = 27		n = 91	
Number of members with One Oral Hygiene Instruction claim code (D1330)	0	0.00%	0	0.00%	0	0.00%	2	7.41%	2	2.20%
Member with a D1330 claim submitted had Oral Hygiene Instruction documented in dental record	N/A	N/A	N/A	N/A	N/A	N/A	2	100.00 %	2	100.00 %

Members with Periodic Oral Exam Claim Preventive and Restorative Procedure Claims (Study Sample n = 574)	Infants and Toddlers (n = 59)		Preschool Children (n = 131)		School-Aged Children (n = 190)		Adolescents (n = 194)		Total (n = 574)	
Preventive and Restorative Procedure Claims for Members with Periodic Oral Exam Claim (n= 91)	n = 6	10.17%	n = 21	16.03%	n = 37	19.47%	n = 27	13.92%	n = 91	15.85%
No Oral Hygiene Instruction documented in dental record for member with a claim	N/A	N/A	N/A	N/A	N/A	N/A	0	0.00%	0	0.00%
Oral Hygiene Instruction documented in dental record for members without a D1330 claim submitted	2	33.33%	10	47.62%	21	56.76%	15	55.56%	48	52.75%
Pain Management	n = 6		n = 21		n = 37		n = 27		n = 91	
Number of members with one Analgesia claim code (D9230)	0	0.00%	0	0.00%	1	2.70%	1	3.70%	2	2.20%
Member had Analgesia documented in the dental record	N/A	N/A	N/A	N/A	1	100.00%	1	100.00%	2	100.00%
No Pain Management documented in dental record	N/A	N/A	N/A	N/A	0	0.00%	0	0.00%	0	0.00%

¹ The Kentucky Dental Fee Schedule notes that an adult code should be used for members over the age of 13, and therefore should not have been submitted for the one preschool member. Of the remaining 12 members with an adult prophylaxis claim, 2 members had adult prophylaxis documented, 2 members had child prophylaxis documented, and 8 had a general prophylaxis statement documented in the dental record. The two adolescents with child prophylaxis documented in the dental record had an additional child prophylaxis claim submitted (IPRO IDs P348 and P351); only the adult claims were validated based on the adolescents' ages.

² One school-aged member did not have prophylaxis documented in the dental record (P305).

³ Two adolescents with both a child and an adult prophylaxis claim and one school-age member did not have a Child Prophylaxis claim (D1120) validated.

⁴ The one school age member (IPRO ID H199) did not have a filling documented in dental record.

⁵ Two members in the preschool age group did not have periapical x-rays documented; both members (IPRO IDs P261 and H137) had 2 occlusal x-rays documented (occlusal x-rays are not listed on the Kentucky Dental Fee Schedule).

⁶ One adolescent member (IPRO ID P336) did not have a Bitewing 2 image x-ray documented in dental record.

N/A: not applicable.

Brown: no dental record documentation to validate claim; dark blue: total claims and dental record validation; light blue: specific claim code validation within service and/or procedure type; light green: dental record documentation of interest.

Oral Exam Type/Limited Oral Evaluation, Problem Focused by Age Group

In contrast to a comprehensive oral exam, which is recommended as one of the bi-annual visits if visiting a new practice, or if there has been a substantial change in health history since the most recent visit, a limited oral evaluation should address an acute problem, such as a tooth eruption, injury or infection. In total, 20 (3.48%) study sample members had a claim code submitted for a Limited Oral Evaluation (CDT-D0140) including 1 infant, 2 school-aged children, and 17 adolescents; no preschool children had a limited oral exam claim submitted (Table 8). Among these members, the following dental exam components were documented in the dental record:

Extraoral/Oral Cavity/Periodontal/Occlusion Exam

The infant and one of the adolescents did not have an oral exam documented in the dental record.

Health History Obtained

Three of the adolescents did not have any elements of a health history documented, although the infant, both school-aged children, and 11 of the 17 adolescents (64.71%) had a medical history review documented in the dental record.

Chief Complaint

Overall, all the members with limited exam claim submitted had at least one reason for the visit documented in the dental record; 60% of members overall had "pain" documented as the chief complaint, more than half (55%) had "exam" documented, 15% had "restorative care," and 10% had "second opinion or referral."

Clinical Exam Components

The infant and one (5.88%) of the 17 adolescents did not have any clinical exam components documented, whereas both school-aged children and 16 (94.12%) of the 17 adolescents had documentation related to dentition, such as form or color documented.

Caries Risk Assessment/Elements

Overall, 7 of the 20 members did not have any elements of a caries risk assessment documented in the dental record, including the one infant, one of the school-aged children and 5 of the adolescents. The risk level was not documented for the one school-aged child and the 12 adolescents with an element of caries risk documented. None of the members had a biological caries risk element documented. For the protective elements, only two adolescents had poor oral hygiene documented and one adolescent had no topical fluoride history documented. For clinical caries risk findings, five adolescents had visible caries, and one had a defective restoration documented.

Fluoride Assessment

Among the 20 members with a limited oral exam, only one (5.00%) adolescent had a fluoride assessment documented, and the source of fluoridation could not be determined from any of these members' dental record documentation.

Prophylaxis and Topical Fluoride

None of the 20 members with a limited oral exam claim had documentation of prophylaxis or of a topical fluoride application on the exam DOS.

Behavioral Assessment

Five members—1 infant, 1 of the school-aged children, and 3 of the adolescents—had a cooperative behavior assessment documented, while 15 (75.00%) members did not have a behavior assessment documented.

Anticipatory Guidance

Anticipatory guidance was not frequently documented for members having a limited exam. Only one adolescent had general nutrition and general safety counseling documented; only the infant and three adolescents had general oral hygiene counseling documented.

Claim Validation

Overall, a Limited Oral Evaluation (CDT-D0140) claim code was submitted for 3.48% of the study sample (Table 8). A limited dental exam should minimally include documentation of at least one component of a clinical exam, such as dentition, as well as the chief complaint or reason for the exam, to indicate the acute problem being addressed. A review of the dental records for those members for whom the Limited Oral Evaluation (CDT- D0140) claim code was submitted shows the majority (17/20, 85.00%) had dental record documentation meeting the minimum criteria for a limited exam, including 100% of school-aged children and 88.24% of adolescents; the one infant did not have any clinical exam components documented and therefore did not meet the exam validation criteria.

Table 8: Oral Exam/Limited Oral Evaluation Dental Record Documentation by Age Group

Limited Oral Evaluation (n = 574 Members in Final Study Sample)	Infants and Toddlers (n = 59)		Preschool Children (n = 131)		School-Aged Children (n = 190)		Adolescents (n = 194)		Total (n = 574)	
Limited Oral Evaluation claim code (D0140) (n = 20 members)	1	1.69%	0	0.00%	2	1.05%	17	8.76%	20	3.48%
Identified by dental provider as a limited oral evaluation in dental record	1	100.00%	0	0.00%	1	50.00%	13	76.47%	15	75.00%
Extraoral/Oral cavity/Periodontal/Occlusion exam	n = 1		n = 0		n = 2		n = 17		n = 20	
Yes	0	0.00%	0	0.00%	2	100.00%	16	94.12%	18	90.00%
No	1	100.00%	0	0.00%	0	0.00%	1	5.88%	2	10.00%
Health history obtained	n = 1		n = 0		n = 2		n = 17		n = 20	
Medical history reviewed	1	100.00%	0	0.00%	2	100.00%	11	64.71%	14	70.00%
Positive medical issue	0	0.00%	0	0.00%	0	50.00%	1	5.88%	1	5.00%
Hospitalization/Surgery	0	0.00%	0	0.00%	1	50.00%	4	23.53%	5	25.00%
Immunization status	1	100.00%	0	0.00%	0	0.00%	0	0.00%	1	5.00%
Allergies status	1	100.00%	0	0.00%	1	50.00%	4	23.53%	6	30.00%
Medication status	1	100.00%	0	0.00%	1	50.00%	5	29.41%	7	35.00%
Antibiotic prophylaxis	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Tobacco use assessment	0	0.00%	0	0.00%	1	50.00%	2	11.76%	3	15.00%
Positive tobacco use	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Past dental history	0	0.00%	0	0.00%	1	50.00%	3	17.65%	4	20.00%
Dental home status	0	0.00%	0	0.00%	2	100.00%	11	64.71%	13	65.00%
No dental home documented	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
None	0	0.00%	0	0.00%	0	0.00%	3	17.65%	3	15.00%
Chief complaint	n = 1		n = 0		n = 2		n = 17		n = 20	
Pain	0	0.00%	0	0.00%	1	50.00%	11	64.71%	12	60.00%
Initial visit/establish dental home	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Acute trauma	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Second opinion/ referral	1	100.00%	0	0.00%	0	0.00%	1	5.88%	2	10.00%
Cleaning/prophylaxis	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Restorative care	0	0.00%	0	0.00%	1	50.00%	2	11.76%	3	15.00%
Recall	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Swelling	0	0.00%	0	0.00%	0	0.00%	1	5.88%	1	5.00%

Limited Oral Evaluation (n = 574 Members in Final Study Sample)	Infants and Toddlers (n = 59)		Preschool Children (n = 131)		School-Aged Children (n = 190)		Adolescents (n = 194)		Total (n = 574)	
Limited Oral Evaluation claim code (D0140) (n = 20 members)	1	1.69%	0	0.00%	2	1.05%	17	8.76%	20	3.48%
Not documented	0	0.00%	0	0.00%	0	0.00%	1	5.88%	1	5.00%
Exam	0	0.00%	0	0.00%	2	100.00%	9	52.94%	11	55.00%
Other	0	0.00%	0	0.00%	0	0.00%	1	5.88%	1	5.00%
None	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Clinical exam components	n = 1		n = 0		n = 2		n = 17		n = 20	
Normal occlusion (bite test)	0	0.00%	0	0.00%	1	50.00%	0	0.00%	1	5.00%
Examine maxillary incisors	0	0.00%	0	0.00%	1	50.00%	0	0.00%	1	5.00%
Upper/Lower lip/Buccal mucosa	0	0.00%	0	0.00%	2	100.00%	2	11.76%	4	20.00%
Plaque accumulation/Gum line exam	0	0.00%	0	0.00%	1	50.00%	1	5.88%	2	10.00%
Pressure point tenderness	0	0.00%	0	0.00%	0	0.00%	1	5.88%	1	5.00%
Fissures	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Palate	0	0.00%	0	0.00%	2	100.00%	1	5.88%	3	15.00%
Tongue	0	0.00%	0	0.00%	2	100.00%	1	5.88%	3	15.00%
Oropharynx	0	0.00%	0	0.00%	2	100.00%	1	5.88%	3	15.00%
Dental exam (color, form, number)/Caries	0	0.00%	0	0.00%	2	100.00%	16	94.12%	18	90.00%
TMJ	0	0.00%	0	0.00%	1	50.00%	0	0.00%	1	5.00%
Neck/Lymph	0	0.00%	0	0.00%	1	50.00%	0	0.00%	1	5.00%
None of the above	1	100.00%	0	0.00%	0	0.00%	1	5.88%	2	10.00%
Caries risk assessment/Elements documented during the visit	n = 1		n = 0		n = 2		n = 17		n = 20	
No	1	100.00%	0	0.00%	1	50.00%	5	29.41%	7	35.00%
Yes	0	0.00%	0	0.00%	1	50.00%	12	70.59%	13	65.00%
Yes, high risk	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Yes, moderate risk	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Yes, low risk	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Yes, risk level not documented	0	0.00%	0	0.00%	1	50.00%	12	70.59%	13	65.00%
Elements of caries risk documented	n = 1		n = 0		n = 2		n = 17		n = 20	
Biological										
Caregiver has active caries	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Low socioeconomic status	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%

Limited Oral Evaluation (n = 574 Members in Final Study Sample)	Infants and Toddlers (n = 59)		Preschool Children (n = 131)		School-Aged Children (n = 190)		Adolescents (n = 194)		Total (n = 574)	
Limited Oral Evaluation claim code (D0140) (n = 20 members)	1	1.69%	0	0.00%	2	1.05%	17	8.76%	20	3.48%
Child has >3 sugar-containing snacks or beverages/day	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Put to bed with a bottle	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Child has special health care needs	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Child is a recent immigrant	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
None	1	100.00%	0	0.00%	2	100.00%	17	100.00%	20	100.00%
Protective										
Non-fluoride water source	0	0.00%	0	0.0%	0	0.00%	0	0.00%	0	0.00%
Poor oral hygiene	0	0.00%	0	0.0%	0	0.00%	2	11.76%	2	10.00%
No dental home/care	0	0.00%	0	0.0%	0	0.00%	0	0.00%	0	0.00%
No topical fluoride history	0	0.00%	0	0.0%	0	0.00%	1	5.88%	1	5.00%
None	1	100.00%	0	0.0%	2	100.00%	14	82.35%	17	85.00%
Clinical findings										
White spot lesions/enamel defects	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Visible cavities/fillings	0	0.00%	0	0.00%	0	0.00%	5	29.41%	5	25.00%
Plaque on teeth	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Elevated <i>Mutans streptococci</i> levels	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Defective restorations	0	0.00%	0	0.00%	0	0.00%	1	5.88%	1	5.00%
Wearing an intraoral appliance	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
None	1	100.00%	0	0.00%	2	100.00%	12	70.59%	15	75.00%
Fluoride assessment documented	n = 1		n = 0		n = 2		n = 17		n = 20	
Yes	0	0.00%	0	0.00%	0	0.00%	1	5.88%	1	5.00%
No	1	100.00%	0	0.00%	2	100.00%	16	94.12%	19	95.00%
Household fluoridated water source	n = 1		n = 0		n = 2		n = 17		n = 20	
Yes	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
No	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Fluoride Supplements	n = 1		n = 0		n = 2		n = 17		n = 20	
UTD	1	100.00%	0	0.00%	2	100.00%	17	100.00%	20	100.00%
Prophylaxis	n = 1		n = 0		n = 2		n = 17		n = 20	
Adult prophylaxis	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%

Limited Oral Evaluation (n = 574 Members in Final Study Sample)	Infants and Toddlers (n = 59)		Preschool Children (n = 131)		School-Aged Children (n = 190)		Adolescents (n = 194)		Total (n = 574)	
Limited Oral Evaluation claim code (D0140) (n = 20 members)	1	1.69%	0	0.00%	2	1.05%	17	8.76%	20	3.48%
Child prophylaxis	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Prophylaxis	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Prophylaxis total	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Topical fluoride application	n = 1		n = 0		n = 2		n = 17		n = 20	
Adult topical application	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Child topical application	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Topical fluoride application (general statement/not specified)	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Topical fluoride application total	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Behavioral assessment	n = 1		n = 0		n = 2		n = 17		n = 20	
Cooperative	1	100.00%	0	0.00%	1	50.00%	3	17.65%	5	25.00%
Non-cooperative	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Not documented	0	0.00%	0	0.00%	1	50.00%	14	82.35%	15	75.00%
Anticipatory guidance	n = 1		n = 0		n = 2		n = 17		n = 20	
Nutrition and diet counseling										
Eat healthy snacks	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Eat less-to-no junk food or candy	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
No soda/ sugar drinks	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Xylitol	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
No sugar drinks in bed	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Wean off bottle	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Less-to-no-juice intake	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Drink tap water/only water in sippy cup	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
General counseling	0	0.00%	0	0.00%	0	0.00%	1	5.88%	1	5.00%
None	1	100.00%	0	0.00%	2	100.00%	16	94.12%	19	95.00%
At least one of the above documented										
Safety counseling										
Mouth guard during sports	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Tobacco avoidance counseling	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
General counseling	0	0.00%	0	0.00%	0	0.00%	1	5.88%	1	5.00%

Limited Oral Evaluation (n = 574 Members in Final Study Sample)	Infants and Toddlers (n = 59)		Preschool Children (n = 131)		School-Aged Children (n = 190)		Adolescents (n = 194)		Total (n = 574)	
Limited Oral Evaluation claim code (D0140) (n = 20 members)	1	1.69%	0	0.00%	2	1.05%	17	8.76%	20	3.48%
None	1	100.00%	0	0.00%	2	100.00%	16	94.12%	19	95.00%
At least one of the above documented										
Oral hygiene –general counseling										
Use fluoride toothpaste	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
No sharing of utensils	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Fluoridated water source or supplement	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
General counseling	1	100.00%	0	0.00%	0	0.00%	3	17.65%	4	20.00%
Use soft toothbrush	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Avoidance of bottle in bed	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Establish a dental home by the age of 12 month by 1st tooth	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Brush twice daily	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Use clean pacifier	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
If still using bottle, offer only water	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Flossing once daily flossing	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Regular visits with dentist (twice yearly)	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Dental treatments for parents	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Topical fluoride treatments	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
None	0	0.00%	0	0.00%	2	100.00%	14	82.35%	16	80.00%
Limited Oral Evaluation claim code (D0140)	n = 1		n = 0		n = 2		n = 17		n = 20	
Percent of dental records with all elements of a Limited Oral Exam ¹	0	0.00%	N/A	N/A	2	100.00%	15	88.24%	17	85.00%

¹ A limited oral exam includes the following components: At least one component documented from the Chief Complaint Section; at least one component documented from the Clinical Exam Components Section.

Dark blue: total claims and dental record validation.

Preventive Services and Diagnostic and Restorative Procedures Codes Submitted for Members with a Limited Oral Evaluation by Age Group

None of the members with a claim for a limited oral exam had a service or procedure claim submitted on the exam DOS for the following: prophylaxis, fluoride treatment/varnish, sealants, crowns, therapeutic pulpotomy, pulp capping, dental pain management, or oral hygiene instruction; it should be noted that five adolescent members with a limited exam had analgesia documented in the dental record, although a claim was not submitted for the service.

Members, for whom a Limited Oral Exam (CDT-D0140) claim was submitted, additionally had claims for the following diagnostic and restorative procedures submitted on the exam DOS (Table 9):

Extractions

In total, two (10.00%) members—one school-aged child and one adolescent—had a claim submitted for an extraction during a limited oral exam, and both these members had an extraction documented in the dental record.

Fillings

One adolescent member had one filling claim (CDT-D2332) submitted on the limited oral exam DOS, and the filling type and location was documented in the dental record for this member; the number of surfaces treated was not documented in the dental record.

X-Rays

In total, 27 x-ray claims were submitted for members on the same DOS as a limited oral exam, and all of these claims were validated by dental record documentation for the x-ray type. Adolescents had the majority of total X-rays (23/27) and most of these were for the First Periapical Image (CDT-D0220) claim code.

Table 9: Preventive and Restorative Procedure Claims/Documented Services for Members with a Limited Oral Exam by Age Group

Preventive and Restorative Procedure Claims Limited Oral Exam Code (n = 574 Members in Final Study Sample)	Infants and Toddlers (n = 59)		Preschool Children (n = 131)		School-Aged Children (n = 190)		Adolescents (n = 194)		Total (n = 574)	
Limited Oral Evaluation claim code (D0140) (n = 20 Members with Limited Oral Exam Code)	1	1.69%	0	0.00%	2	1.05%	17	8.76%	20	3.48%
Extractions	n = 1		n = 0		n = 2		n = 17		n = 20	
Total Extractions Claims	0	0.00%	0	0.00%	1	50.00%	1	5.88%	2	10.00%
Total Extractions documented in dental record	N/A	N/A	N/A	N/A	1	100.00%	1	100.00%	2	100.00%
No Extractions documented in dental record	N/A	N/A	N/A	N/A	0	0.00%	0	0.00%	0	0.00%
Number of members with one Extractions of Coronal Remnants claim code (D7111)	0	0.00%	0	0.00%	1	50.00%	0	0.00%	1	5.00%
Member had one Extraction of Coronal Remnants documented in dental record	N/A	N/A	N/A	N/A	1	100.00%	N/A	N/A	1	100.00%
No Extractions documented in dental record	N/A	N/A	N/A	N/A	0	0.00%	N/A	N/A	0	0.00%
Number of members with one Surgical Removal of erupted tool claim code (D7210)	0	0.00%	0	0.00%	0	0.00%	1	5.88%	1	5.00%
Member had one Surgical Removal of erupted tooth documented in dental record	N/A	N/A	N/A	N/A	N/A	N/A	1	100.00%	1	100.00%
No Extractions documented in dental record	N/A	N/A	N/A	N/A	N/A	N/A	0	0.00%	0	0.00%
Fillings	n = 1		n = 0		n = 2		n = 17		n = 20	
Number of members with one Filling Resin- three surfaces, Anterior claim code (D2332)	0	0.00%	0	0.00%	0	0.00%	1	5.88%	1	5.00%

Preventive and Restorative Procedure Claims Limited Oral Exam Code (n = 574 Members in Final Study Sample)	Infants and Toddlers (n = 59)		Preschool Children (n = 131)		School-Aged Children (n = 190)		Adolescents (n = 194)		Total (n = 574)	
Limited Oral Evaluation claim code (D0140) (n = 20 Members with Limited Oral Exam Code)	1	1.69%	0	0.00%	2	1.05%	17	8.76%	20	3.48%
Member had one filling Resin Anterior documented in dental record; (three surfaces not documented in dental record)	N/A	N/A	N/A	N/A	N/A	N/A	1	100.00%	1	100.00%
No Fillings documented in dental record	N/A	N/A	N/A	N/A	N/A	N/A	0	0.00%	0	0.00%
Diagnostic imaging/X-Rays	n = 1		n = 0		n = 2		n = 17		n = 20	
Total Diagnostic Imaging/X-rays Claims	1	100.00%	0	0.00%	3	150.00%	23	135.29%	27	135.00%
Total Diagnostic Imaging/X-rays documented in dental record	1	100.00%	N/A	N/A	3	100.00%	23	100.00%	27	100.00%
No X-rays documented in dental record	0	0.00%	N/A	N/A	0	0.00%	0	0.00%	0	0.00%
Number of members with one X-rays Intraoral Periapical First Image claim codes (D0220)	1	100.00%	0	0.00%	1	50.00%	14	82.35%	16	80.00%
Member had one X-ray Intraoral Periapical First Image documented in dental record	1	100.00%	N/A	N/A	1	100.00%	14	100.00%	16	100.00%
No X-rays documented in dental record	0	0.00%	N/A	N/A	0	0.00%	0	0.00%	0	0.00%
Number of members with one X-ray Intraoral Periapical each additional claim codes (D0230)	0	0.00%	0	0.00%	0	0.00%	2	11.76%	2	10.00%
Member had one X-ray Intraoral Periapical each additional documented in the dental record	N/A	N/A	N/A	N/A	N/A	N/A	2	100.00%	2	100.00%
No X-rays documented in dental record	N/A	N/A	N/A	N/A	N/A	N/A	0	0.00%	0	0.00%

Preventive and Restorative Procedure Claims Limited Oral Exam Code (n = 574 Members in Final Study Sample)	Infants and Toddlers (n = 59)		Preschool Children (n = 131)		School-Aged Children (n = 190)		Adolescents (n = 194)		Total (n = 574)	
Limited Oral Evaluation claim code (D0140) (n = 20 Members with Limited Oral Exam Code)	1	1.69%	0	0.00%	2	1.05%	17	8.76%	20	3.48%
Number of members with one X-ray Bitewing-Two Images claim codes (D0272)	0	0.00%	0	0.00%	1	50.00%	0	0.00%	1	5.00%
Member had one X-ray Bitewing-Two Images documented in the dental record	N/A	N/A	N/A	N/A	1	100.00%	N/A	N/A	1	100.00%
No X-rays documented in dental record	N/A	N/A	N/A	N/A	0	0.00%	N/A	N/A	0	0.00%
Number of members with one X-ray Bitewing-Four Images claim codes (D0274)	0	0.00%	0	0.00%	0	0.00%	2	11.76%	2	10.00%
Member had one X-ray Bitewing-Four Images documented in dental record	N/A	N/A	N/A	N/A	N/A	N/A	2	100.00%	2	100.00%
No X-rays documented in dental record	N/A	N/A	N/A	N/A	N/A	N/A	0	0.00%	0	0.00%
Number of members with one X-rays Panoramic Image claim codes (D0330)	0	0.00%	0	0.00%	1	50.00%	5	29.41%	6	30.00%
Member had one X-ray Panoramic Image documented in the dental record	N/A	N/A	N/A	N/A	1	100.00%	5	100.00%	6	100.00%
No Diagnostic Imaging/X-rays documented in dental record	N/A	N/A	N/A	N/A	0	0.00%	0	0.00%	0	0.00%
Pain management	n = 1		n = 0		n = 2		n = 17		n = 20	
Number of members with Analgesia claim code (D9230)	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Total Pain Management documented in dental record	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Preventive and Restorative Procedure Claims Limited Oral Exam Code (n = 574 Members in Final Study Sample)	Infants and Toddlers (n = 59)		Preschool Children (n = 131)		School-Aged Children (n = 190)		Adolescents (n = 194)		Total (n = 574)	
Limited Oral Evaluation claim code (D0140) (n = 20 Members with Limited Oral Exam Code)	1	1.69%	0	0.00%	2	1.05%	17	8.76%	20	3.48%
No Pain Management documented in dental record	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Member had Analgesia documented in the dental record without claim code D9230 submitted	N/A	N/A	N/A	N/A	N/A	N/A	5	29.41%	5	25.00%

Brown: no dental record documentation to validate claim; dark blue: total claims and dental record validation; light blue: specific claim code validation within service and/or procedure type; light green: dental record documentation of interest.

Dental Abnormalities Documented during Dental Exam by Age Group

Overall, 58.36% of members had at least one abnormality documented by the dental provider on the exam DOS (Table 10), including 37.29% of infants and toddlers, 46.56% of preschool children, 61.58% of school-aged children and 69.59% of adolescents. The most frequently documented abnormalities among these members overall were cavities (54.63%), coronal plaque (24.78%), gingivitis (19.40%), and calculus (11.94%).

Table 10: Documented Dental Abnormalities by Age Group

Dental Abnormalities (n = 574 Members in Final Study Sample)	Infants and Toddlers (n = 59) 10.27%		Preschool Children (n = 131) 22.82%		School-Aged Children (n = 190) 33.10%		Adolescents (n = 194) 33.79%		Total (n = 574)	
Dental abnormalities – documented by the provider on Exam DOS	22	37.29%	61	46.56%	117	61.58%	135	69.59%	335	58.36%
None	37	62.71%	70	53.44%	73	38.42%	59	30.41%	239	41.64%
Abnormality type	n = 22		n = 61		n = 117		n = 135		n = 335	
Cavity/Caries enamel Breakdown/Tooth decay/Fissures/Pits (decay)	12	54.55%	35	57.38%	69	58.97%	67	49.63%	183	54.63%
Calculus	0	0.00%	4	6.56%	8	6.84%	28	20.74%	40	11.94%
Coronal plaque	3	13.64%	15	24.59%	34	29.06%	31	22.96%	83	24.78%
Stains	1	4.55%	10	16.39%	3	2.56%	11	8.15%	25	7.46%
Gum loss/Recession	0	0.00%	0	0.00%	0	0.00%	1	0.74%	1	0.30%
Hairline fracture of the tooth	0	0.00%	0	0.00%	0	0.00%	1	0.74%	1	0.30%
Alveolar abnormality (jaw bones compromised)	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Periapical (tooth root) abnormality	0	0.00%	1	1.64%	3	2.56%	4	2.96%	8	2.39%
Infection	0	0.00%	3	4.92%	4	3.42%	5	3.70%	12	3.58%
Impaction/Wisdom teeth/Third molars	0	0.00%	0	0.00%	1	0.85%	13	9.63%	14	4.18%
Trauma to the tooth	1	4.55%	1	1.64%	2	1.71%	3	2.22%	7	2.09%
Weakness in existing fillings, crowns, and bridgework	0	0.00%	0	0.00%	2	1.71%	2	1.48%	4	1.19%
Bone recession	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Teeth deterioration due to abnormal bite	0	0.00%	0	0.00%	0	0.00%	1	0.74%	1	0.30%
Teeth deterioration due to bruxism (teeth grinding)	1	4.55%	3	4.92%	6	5.13%	1	0.74%	11	3.28%
Teeth deterioration due to TMJ	0	0.00%	0	0.00%	0	0.00%	1	0.74%	1	0.30%
Malocclusion	3	13.64%	0	0.00%	12	10.26%	9	6.67%	24	7.16%
Gingivitis	7	31.82%	9	14.75%	18	15.38%	31	22.96%	65	19.40%
Bleeding	2	9.09%	1	1.64%	4	3.42%	16	11.85%	23	6.87%
Other	1	4.55%	4	6.56%	10	8.55%	18	13.33%	33	9.85%

Follow-up Action Plan for Dental Abnormalities

All of the 335 (58.36%) study sample members with a documented abnormality on the exam DOS had a least one follow-up plan documented in the dental record (Table 11). Most frequently, members were scheduled for a recall or follow-up exam (76.12%) to address the issues. Another frequently documented follow-up was for further testing, such as an x-ray, including 36.36% of infants and toddlers, 40.98% of preschool children, 82.05% of school-aged children and 80% of adolescents. Over two-thirds of members (68.06%) received counseling, tailored education or medication to address the problem, while 39.70% received a procedure on the same exam DOS to treat the issue. Overall, 46 members (13.73%) had a referral documented to address the identified issue, and the most frequent type of referral (41.30%) was to an orthodontist for 5 school aged children and 14 adolescents.

Table 11: Action Plan for Dental Abnormalities by Age Group

Follow-up Plan for Dental Abnormalities (n = 335 Members with Provider-Documented Dental Abnormalities)	Infants and Toddlers (n = 59) 10.27%		Preschool Children (n = 131) 22.82%		School-Aged Children (n = 190) 33.10%		Adolescents (n = 194) 33.79%		Total (n = 574)	
Dental abnormalities – documented by the provider on pre-populated DOS	22	37.29%	61	46.56%	117	61.58%	135	69.59%	335	58.36%
Action plan for dental abnormalities documented on exam visit DOS	22	100.00%	61	100.00%	117	100.00%	135	100.00%	335	100.00%
Further testing/any procedures/x-rays	8	36.36%	25	40.98%	96	82.05%	108	80.00%	237	70.75%
Addressed in practice/counseling/member education/medication/	15	68.18%	35	57.38%	85	72.65%	93	68.89%	228	68.06%
Referral (or referral in place/under care)	1	4.55%	4	6.56%	11	9.40%	30	22.22%	46	13.73%
Schedule follow-up visit/ recall exam	18	81.82%	54	88.52%	96	82.05%	87	64.44%	255	76.12%
Same-day procedure/ follow-up	3	13.64%	23	37.70%	44	37.61%	63	46.67%	133	39.70%
At least one of the above documented	22	100.00%	61	98.39%	117	100.85%	135	100.74%	335	100.00%
Referral Type	n = 1		n = 4		n = 11		n = 30		n = 46	
Dental specialists ¹										
Endodontist	0	0.00%	0	0.00%	0	0.00%	5	16.67%	5	10.87%
Oral surgeon	0	0.00%	1	25.00%	1	9.09%	5	16.67%	7	15.22%
Orthodontist	0	0.00%	0	0.00%	5	45.45%	14	46.67%	19	41.30%
Periodontist	0	0.00%	1	25.00%	0	0.00%	1	3.33%	2	4.35%
Other dental specialist	1	100.00%	2	50.00%	5	45.45%	0	0.00%	8	17.39%
Other referral	0	0.00%	2	50.00%	1	9.09%	5	16.67%	8	17.39%
Referral type not documented	0	0.00%	0	0.00%	1	9.09%	2	6.67%	3	6.52%

¹ Some members had more than one referral type.

Discussion

Dental services are an important part of comprehensive services under EPSDT and a referral to a dentist is required consistent with the state's periodicity schedule. The Kentucky Medicaid Dental Periodicity Schedule, which is based upon AAP/ADA and AAPD guidelines, illustrates the importance of early professional intervention and continuity of care based upon a set of recommendations for children who are developing normally, without identified health problems. Furthermore, recommendations should be modified for children with specific health conditions, health care needs, risk factors or any variations from normal. Therefore, the recommended schedule, services and procedures should be patient-specific and tailored to the individual needs of the child.

I PRO conducted studies in 2014 and 2015 to validate EPSDT codes, and oral health assessment was identified as a gap in care. Specifically, that study identified low rates of both oral health assessments (approximately 60% of study sample members overall) and dental health referrals (approximately 16% of study sample members overall); more than a third of study sample members had neither a dental assessment nor a dental referral. In an effort to support Kentucky's ongoing focus on oral health, I PRO completed this validation study to determine if dental services codes for exam type, preventive services, and diagnostic and restorative dental treatments are documented in the dental record. The results of this validation study were reported for each exam type (comprehensive, periodic and limited). It is important to note that the KDM Dental Fee Schedule has changed as of February 2016; however, this discussion will refer to the Fee schedule in place at the time of the study, unless otherwise noted.

Validation of Diagnostic Imaging Claims, Preventive Services Claims, Procedure Claims and Action Plans for Dental Abnormalities

The vast majority of preventive services, diagnostic imaging and restorative procedure claims were validated with at least a general statement, and for most, some level of detail and specificity as indicated in the dental record. Overall, the rates of documentation in the dental record of prophylaxis were high. There are some coding nuances to consider when looking at the use of the adult prophylaxis code in children; however, the overall high rate of prophylaxis documentation for the claims submitted is clinically meaningful. Topical Fluoride applications, sealants, fillings, extractions and x-rays, according to the claim code specifications were all well documented in the dental record. Action plans for provider follow-up for dental abnormalities documented on the exam DOS were validated for all members with a documented abnormality. This pattern of dental record documentation seems to support a procedure-based and problem-focused style of documentation.

Although preventive service claims were well documented in the dental record and thus validated for the study sample, the overall frequency of preventive claims submitted for sealants and oral hygiene instruction (Table 3) represented very small percentages of study sample members. This might represent missed opportunities for cavity prevention evidenced in the rate of documented cavities across all age groups.

Validation of Recommended Components of Oral Exam Types

As noted above, procedure based-documentation, diagnostic testing documentation and problem-focused documentation were found at dramatically higher rates, as compared to documentation for preventive exam and assessment components (including Anticipatory Guidance, Safety Counseling, Oral Hygiene instruction, Health History, and Caries Risk, Behavior and Fluoride Assessments).

Among the majority of study sample members who had a comprehensive oral evaluation, 78.33% had no anticipatory guidance for any element of Nutrition and Diet Counseling, 99.36% had no Safety Counseling and 34.33% no Oral Hygiene-General Counseling documented in the dental record. This represents vitally important missed opportunities to improve dental health. When looking at specific anticipatory guidance elements documented in the dental record within

these categories, many were 0% for all study members, most notably the anticipatory guidance elements specified on the Kentucky dental periodicity schedule (Establish a Dental home by the Age of 12 Months or by First Tooth and Regular Visits Every 6 Months); yet, these are vital components of Kentucky's ongoing focus on oral health. Notably, only one adolescent member in the study sample was counseled to avoid tobacco. Pediatric dental experts have identified the dental provider as having a key role in tobacco use prevention and smoking cessation treatment for the adolescent population as tobacco use places them at risk for future increased morbidity and mortality.²⁰ In most instances, at least one component of the health history was documented in the dental record; however, individual components, such as Hospitalization/Surgery History, Immunization Status, Antibiotic Prophylaxis Status, Tobacco Use Assessment and Past Dental History were documented in 25% or less of the dental records for the study sample overall (Table 4, Table 6, Table 8).

A comprehensive oral evaluation serves to establish the member as a patient, and the information gathered at this visit will be utilized in the future to provide tailored dental care to the patient. Such information should be clearly documented in the dental record to serve as a reference point and communication tool for all parties involved. The lack of documentation in the dental record creates inefficiencies, promotes duplication of efforts, and creates potential for errors. For example, only 47.85% of dental records (submitted with a Comprehensive Oral Evaluation code) had an allergy status documented. This represents significant undocumented critical information that may lead to adverse outcomes. Either the above noted abstraction items are not being addressed or provided or they are not being documented. The medical record serves as a communication tool and must be complete and accurate. Over 65% of the medical records in this study were electronic. Since it can be cumbersome to hand write all of the necessary documentation in a dental record, the use of hand-written checklists or electronic checklists added to the electronic health records system might streamline this process.

Validation of Oral Exam Types Coding

For the purposes of this validation study, a Comprehensive Oral Exam includes: 1) at least one component documented from the Health History section; 2) at least one component documented from the Chief Complaint section; 3) at least one component from the Clinical exam Components section; and 4) Prophylaxis documented. In total, 71.03% of members for whom the Comprehensive Oral Exam code was submitted had dental record documentation supporting the defined minimal components outlined above.

The AADP recommends a preventive care visit every six months with essentially the same exam components as a comprehensive oral exam. Any changes in dental or medical health since the last visit should be addressed in addition to providing age appropriate anticipatory guidance and preventive services. Therefore, for the purposes of this study, the same criteria were used to validate the claims for Periodic Oral evaluations as were used for the Comprehensive Oral evaluations. It should be noted that the Kentucky DMS Dental Fee Schedule in effect for the study sample does not include the Periodic Oral evaluation; however, the current Fee Schedule does include this code and states that it should be limited to "1 per recipient per 12 months." This is different from the AADP recommendation of every 6 months. In total, 87.91% of members for whom the Periodic Oral evaluation claim code was submitted had dental record documentation to meet the study's minimal criteria to validate the Periodic Oral evaluation claim code; this is the highest validation rate for exam type in the study. This might represent differences in how MCOs are instructing their dental providers to code dental exam visits.

In contrast to a Comprehensive Oral evaluation and Periodic Oral evaluation, a Limited Oral Evaluation was consistently found to be a problem-focused visit with supporting documentation in the dental record. There were 20 members that

²⁰ Albert, David DDS MPH, et. al. "Tobacco Use by Adolescents: The Role of the Oral Health Professional in Evidence-based Cessation Programs." *Pediatric Dentistry*—28:2, 2006:177-187.

had a claim code submitted for a Limited Oral evaluation and they were almost all adolescents. For the purposes of this study, the Limited Oral Exam evaluation was validated using the following criteria: 1) at least one component documented from the Chief Complaint section; and 2) at least one component documented from the Clinical Exam section (Table 8). In total, 85% of the members with a Limited Oral evaluation claim code had dental record documentation to validate the claim using these criteria.

Coding Issues

This validation study illustrated some variation among dental provider usage of exam claim codes by MCO. Overall, 81.18% of claims in the final study sample were for a “Comprehensive Oral Evaluation.” For three of the five MCOs, this code represented over 90% of their exam claims reviewed in the study. However, this comprehensive exam claim code represented a lower percentage of claims for two MCOs: Humana-Care Source at 67.52% and Passport Health at 53.33%. Furthermore, overall only 15.85% of the members in the study had a claim submitted for “Periodic Oral Evaluation.” The range for periodic exam claim codes submitted among plans was 0% (WellCare of Kentucky) to 44.17% (Passport Health Plan) (Table 3). This variation in coding may represent confusion among providers regarding what constitutes a comprehensive versus periodic versus limited exam, along with confusion regarding the KDM Dental Fee Schedule, as the periodic code was absent on the Kentucky Fee Schedule in place at the time of the study (note: the periodic claim code is on the current Fee Schedule). The overall percentage for the “Oral Limited Evaluation” remained relatively consistent among plans (Table 3).

Provider claim code confusion was also evident for Fluoride Application codes that changed on the revised Fee Schedule effective February 2016, as well as differences for both Fluoride and Prophylaxis codes using dental age (recommended by ADA) versus chronological age (on KDM Dental Fee Schedule).

Limitations

The major limitation of a dental record validation study is that only documented information is captured and used to validate what occurs during a dental visit. It is not possible to make the determination regarding what has been “discussed, but not documented” or “performed, but not documented.” Additionally, IPRO requested documentation for the dental exam DOS that might not have included dental hygienist documentation. Perhaps a significant portion of information pertaining to Health History, and Anticipatory Guidance, as well as Caries Risk, Behavior and Fluoride assessments is being performed by dental hygienists, or was documented on a prior DOS, and was not captured or submitted in the dental record provided. However, if the submitted exam DOS documentation did not include prior history documentation, the DOS documentation for this study should have made reference to the pre-existing documentation in the dental record as “history reviewed.”

The dental record review accepted any caries risk element documented as an indicator of a caries risk assessment, which might overstate the rate of caries risk assessments performed. The rate of caries risk elements documented could be more indicative of the pattern of problem-focused of documentation rather than a full caries risk assessment.

Nurse reviewers were instructed to abstract both specific documentation and “general statements” for certain items, such as Prophylaxis and Fluoride, in order to capture instances when abbreviations or specific coding details, such as age, were not documented by the provider in the dental record. Some items, such as x-rays and fillings, had specific coding details regarding location, surfaces treated, material, etc., which could not be validated due to incomplete documentation of the details specified within the code.

For the purposes of this study, Oral Evaluation exam type codes were validated with minimal criteria. However, important components for each exam type were frequently not documented such as allergies and need for antibiotic prophylaxis, which clearly illustrate areas in need of improvement.

Recommendations for KY DMS

- Caries Risk Assessment, Oral Hygiene Instruction and Analgesia claim codes are not included on the KDM Dental Fee Schedule; inclusion of these might improve provider awareness, performance and documentation of these services.
- Consider aligning the age specificity for Fluoride and Prophylaxis coding with the ADA standard based on age of dentition, instead of chronological age.
- Consider encouraging MCOs to develop provider education including ADA/AADP recommended exam components, the definition of oral exam types, coding changes, coding requirements (including age specificity and location details), and Fee Schedule changes.
- Consider encouraging MCOs to partner with dental providers for adolescent tobacco prevention and cessation treatment counseling.

Recommendations for MCOs

- Development and Distribution of Provider Toolkits including: 1) Age appropriate ADA Dental Exam component recommendations; 2) AADP recommendations on dental record documentation/charting; 3) Caries Risk, Fluoride and Behavior Assessments protocols and checklists; 4) Health History checklists; 5) Anticipatory Guidance checklists; and 6) definition of oral exam type codes, coding requirements and current KDMS Fee Schedule codes.
- Consider extending such toolkits to dental hygienists since they may be performing a significant portion of the anticipatory guidance, health history and Caries Risk, Fluoride and Behavior assessments.
- Consider establishing a framework to coordinate dental and primary care provider efforts to address adolescent tobacco risk and use.

Recommendations for Providers

- Consider embedding assessment tools and checklists into the dental record (paper and/or electronic).
- Promote the dental record as a communication tool, while maintaining accurate coding and efficient documentation practices.
- Partner with medical providers to enhance adolescent tobacco prevention and smoking cessation efforts with consistent messaging. Improve communication and follow-up with primary care providers upon identification of adolescent tobacco use.

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