Encounter Data Validation Study Report

Santa Clara Family Health Plan

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Managed Care Quality and Monitoring Division
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SFY 2013–14 Encounter Data Validation Study Report
Santa Clara Family Health Plan

1. OVERVIEW AND METHODOLOGY

Overview

Accurate and complete encounter data are critical to assessing quality, monitoring program integrity, and making financial decisions for a managed care program. Therefore, California's Medi-Cal Managed Care program (MCMC) requires its contracted managed care health plans (MCPs) to submit high-quality encounter data. The California Department of Health Care Services (DHCS) relies on the quality of these MCP encounter data submissions to accurately and effectively monitor and improve MCMC's quality of care, establish appropriate performance metrics, generate accurate and reliable reports, and obtain complete and accurate utilization information. The completeness and accuracy of these data are essential to the success of DHCS's overall management and oversight of MCMC.

Beginning in State Fiscal Year (SFY) 2012–13, DHCS contracted with Health Services Advisory Group, Inc. (HSAG), to conduct an Encounter Data Validation (EDV) study. During the first contract year, the EDV study focused on an information systems review and a comparative analysis between the encounter data in the DHCS data warehouse and the data in the MCPs' data systems. For SFY 2013–14, the goal of the EDV study was to examine the completeness and accuracy of the encounter data submitted to DHCS by the MCPs through a review of the medical records. HSAG assessed the encounter data submitted by the MCPs operating under the Two-Plan Model (TPM—both local initiative [LI] and commercial plan [CP]), Geographic Managed Care (GMC) model, County Organized Health Systems (COHS) model, and two specialty plans. This report is specific to Santa Clara Family Health Plan (SCFHP), which delivers care in Santa Clara County.

Methodology

Medical and clinical records are considered the "gold standard" for documenting access to and the quality of health care services. During the second contract year (SFY 2013–14), HSAG evaluated MCMC encounter data completeness and accuracy via the review of medical records for physician services rendered in calendar year 2012. The study answers the following question:

- Are the data elements in Table 1.1 found on the professional encounters complete and accurate when compared to information contained within the medical records?

Table 1.1—Key Data Elements for Medical Record Review

Key Data Element	
Date of Service	Diagnosis Code
Procedure Code	Procedure Code Modifier
Rendering Provider Name	Billing Provider Name

Note: *Rendering Provider Name* is not a data element in the DHCS encounter data. Therefore, HSAG joined the DHCS encounter data, which contain rendering provider identification numbers, with the DHCS provider data to identify the rendering provider name(s) associated with each sampled case. Additionally, as *Rendering Provider Name* and *Billing Provider Name* are not generally found in members' medical records, results for these elements are limited. To augment the information collected during this study, HSAG captured additional provider information during the procurement process in order to assess the accuracy/completeness of the fields. However, since these elements are not directly accessible through the medical record review process, results from this analysis are limited.

To answer the study question, HSAG conducted the following steps:

- Identified the eligible population and generated samples from the data extracted from the DHCS data warehouse.
- Procured medical records from providers.
- Reviewed medical records against the submitted encounter data.
- Calculated study indicators.

Study Population

To be eligible for the medical record review, a member had to be continuously enrolled in the same county and the same MCP under the same program during the study period, and had to have at least one professional visit during the study period. Because the MCMC enrollment of the Seniors and Persons with Disabilities (SPD) population was not completed until May 2012, the study period for the SPD population was from June 1, 2012, to December 31, 2012. The study period for the non-SPD population was from January 1, 2012, to December 31, 2012. In this report, HSAG refers to "professional visits" as the services that met all criteria in Table 1.2.

Table 1.2—Criteria for Professional Visits Included in the Study

Data Element	Criteria
Claim Type	Claim Type = "4" (Medical/Physician) in the DHCS data warehouse
Provider Type	Certified nurse midwife
	Certified pediatric nurse practitioner and certified family nurse practitioner
	Clinic-otherwise undesignated
	Community clinics
	Group certified pediatric nurse practitioner and certified family nurse practitioner

Data Element	Criteria
	Multi-specialty clinics
	Physicians
	Physicians group
	Podiatrists
	Rural Health Clinics and Federally Qualified Health Centers
Place of Service	Assisted Living Facility
	Emergency Room – Hospital
	Federally Qualified Health Center
	Group Home
	Home
	Independent Clinic
	Office
	Public Health Clinic
	Rural Health Clinic
	Urgent Care Facility
Procedure Code	If all detail lines for a visit had a procedure code starting with "E," "D," or "V," the visit was excluded from the study since these procedure codes are for services that are outside the scope of work for this study (e.g., durable medical equipment [DME], dental, vision).

Sampling Strategy

HSAG used a two-stage sampling technique to select samples based on the member enrollment and encounter data extracted from the DHCS data warehouse. HSAG first identified all SPD and non-SPD members who met the study population eligibility criteria. Proportional random sampling was then used to select 120 members[1] from the eligible population for each of the 53 participating MCP county combinations based on the eligible population size of each MCP's SPD and non-SPD populations. For example, if 90 percent of the eligible population in an MCP county were non-SPD members, HSAG randomly selected 108 non-SPD members (120 * 90% = 108) and 12 SPD members for a total of 120 sampled members for this MCP county. Secondly, for each selected sampled member, HSAG used the SURVEYSELECT procedure in SAS®[2] software to randomly select one professional visit[3] that occurred in the study period (i.e., June 1, 2012, to

[1] The sample size 120 is based on a 90 percent confidence level, a margin of error of 6.5 percent, and a theoretical medical record omission rate of 25 percent.

[2] SAS and all other SAS Institute Inc. product or service names are registered trademarks or trademarks of SAS Institute Inc. in the USA and other countries. ® indicates USA registration.

[3] To ensure that the medical record review included all services provided on the same date of service, encounters with the same date of service and same billing and rendering provider were consolidated into one visit for sampling purposes.

December 31, 2012, for an SPD member and January 1, 2012, to December 31, 2012, for a non-SPD member). Additionally, to evaluate whether any of the dates of service were omitted from the DHCS data warehouse, HSAG reviewed a second date of service rendered by the same provider during the review period which was closest to the selected date of service and was selected by the provider from the medical records for each sampled member. If a sampled member did not have a second visit with this provider during the review period, HSAG evaluated only one date of service for that member. As such, the final number of cases reviewed was between 120 and 240 cases in total for each MCP county combination.

Due to the two-stage sampling protocol, the probability of a sample case being selected was dependent on both the distribution of an MCP's SPD and non-SPD population as well as the distribution of encounters for SPD and non-SPD members, and the calculation of MCP county rates were derived using sample weights. While the distribution of SPD and non-SPD members was accounted for within the first stage using proportional sampling, similar adjustments for encounter distributions could not be made in advance of locating and reviewing medical records. Therefore, in order to calculate a representative rate for the overall population for each MCP county, HSAG assigned weights to the non-SPD and SPD rates based on the volume of professional visits from the non-SPD population in calendar year 2012 and the projected volume of professional visits from the SPD population in 2012. This method ensured that the MCP county results were not over- or underreported for non-SPD and SPD rates.

Since an equal number of cases was selected from each MCP county to ensure an adequate sample size when reporting rates at the MCP county level, additional adjustments were required to aggregate rates at the MCP and statewide level to account for population differences among the MCPs and MCP counties. When reporting MCP or aggregate statewide rates for the overall population, the MCP counties' raw rates were weighted according to the volume of professional visits among the eligible population for each MCP county. Similarly, MCP weighted rates were used and adjusted to calculate the statewide weighted rates. This methodology ensured that no MCP county was over- or underrepresented in the MCP or statewide aggregate rates. HSAG used a similar weighting method to calculate MCP and statewide rates for the SPD population.

Medical Record Procurement

Prior to initiating the medical record procurement, HSAG sent an introduction letter to each MCP outlining the scope of the EDV study and disseminated details specific to the medical record procurement. The letter also announced that HSAG would be using a California-based medical record procurement vendor to collect the medical records and conduct the medical record review. In addition, because the DHCS provider data did not contain provider telephone numbers, HSAG requested each MCP to submit the provider contact information to assist with the medical record procurement.

When the sample was finalized, the associated date of service and service provider were identified for each sampled member. For each provider identified, the procurement vendor first telephoned the provider's office to introduce the study, verified the correct address of the provider's practice location and fax number, and obtained a contact name for the practice. The vendor then faxed a standardized record request letter explaining the purpose of the study and included both a listing of the sampled members from the provider's practice and the required medical record documentation requested. The vendor discussed the most efficient method for the provider to supply the requested documentation—either by fax, direct upload to the vendor's Web portal, or by arranging a convenient time to visit the site and scan the required documents directly into the vendor's secure file transfer protocol (SFTP) site. All electronic medical records were maintained on a secure site, which allowed the vendor's trained certified coders to validate the cases at a centralized location under supervision and oversight. As with all medical record review and research activities, HSAG and its subcontracted vendors have implemented a thorough Health Insurance Portability and Accountability Act of 1996 (HIPAA) compliance and protection program in accordance with federal regulations that includes recurring training as well as policies and procedures that address physical security, electronic security, and day-to-day operations. Based on discussions with DHCS, HSAG did not allow providers to submit medical records via U.S. mail and worked with providers to determine an alternative method for record submission.

Review of Medical Records

Concurrent with record procurement activities, HSAG trained the vendor's certified coding staff on specific study protocols and conducted interrater reliability and rater-to-standard testing. All reviewers had to achieve a 95 percent accuracy rate before they were allowed to review medical records and collect data for the study.

During the medical record review, trained and certified coders first verified whether the sampled date of service from the DHCS encounter data could be found in the member's medical record. If so, the coders determined that the date of service was valid; if not, the coders listed the date of service as a *medical record omission*. The coders then reviewed the services provided on the selected date of service and validated the key data elements in Table 1.1. All findings were entered into an electronic medical record abstraction tool to ensure data integrity.

After the coders evaluated the selected date of service, they determined if the provider submitted medical record documentation for a second date of service in the study period. If the documentation for a second date of service was available, the coder reviewed the services rendered on this date and validated the key data elements associated with the second date of service. If the second date of service was missing from the DHCS data warehouse, it was listed as an *encounter data omission*. The missing values associated with this visit were listed as an *omission* for each key data element, respectively.

Study Indicators

Once the medical record abstraction was completed, HSAG analysts exported the abstraction data from the electronic tool, reviewed the data, and conducted the analysis. HSAG developed four study indicators to report the medical record review results:

- *Medical record omission rate*: the percentage of dates of service identified in the electronic encounter data that were not found in the members' medical records. HSAG also calculated this rate for the other key data elements in Table 1.1.
- *Encounter data omission rate*: the percentage of dates of service from members' medical records that were not found in the electronic encounter data. HSAG also calculated this rate for the other key data elements in Table 1.1.
- *Accuracy rate of coding*: the percentage of diagnosis codes, procedure codes, procedure code modifiers, billing provider names, and rendering provider names associated with validated dates of service from the electronic encounter data that were correctly coded based on the members' medical records.
- *Overall accuracy rate:* the percentage of dates of service with all data elements coded correctly among all the validated dates of service from the electronic encounter data.

For each study indicator, HSAG used the following schema to assign a percentile ranking to show the performance among all MCPs with reportable rates. The 10th, 25th, 75th, and 90th percentiles were calculated based on MCPs' rates using the UNIVARIATE procedure in SAS software. Although 24 MCPs were evaluated in the EDV study, the number of rates used to derive the percentiles may be less than 24 because MCPs with a rate of "NA" were not included in the percentile calculation (refer to Appendix A for the number of rates included for each study indicator).

Table 1.3—Criteria for Percentile Ranking

Percentile Ranking	Study Indicator	Criteria
<10th	Medical record procurement, element accuracy, or all-element accuracy	Rate below the 10th percentile among all MCPs with reportable rates
10th–25th		Rate at or above the 10th percentile but below the 25th percentile among all MCPs with reportable rates
25th–75th		Rate at or above the 25th percentile but below the 75th percentile among all MCPs with reportable rates
75th–90th		Rate at or above the 75th percentile but below the 90th percentile among all MCPs with reportable rates
≥90th		Rate at or above the 90th percentile among all MCPs with reportable rates
NA		No percentile ranking due to small denominator (i.e., <30)

Percentile Ranking	Study Indicator	Criteria
<10th	Medical record omission or encounter data omission	Rate above the 90th percentile among all MCPs with reportable rates
10th–25th		Rate at or below the 90th percentile but above the 75th percentile among all MCPs with reportable rates
25th–75th		Rate at or below the 75th percentile but above the 25th percentile among all MCPs with reportable rates
75th–90th		Rate at or below the 25th percentile but above the 10th percentile among all MCPs with reportable rates
≥90th		Rate at or below the 10th percentile among all MCPs with reportable rates
NA		No percentile ranking due to small denominator (i.e., <30)

For the medical record omission and encounter data omission rates, lower rates represent better performance. Therefore, the percentile ranking criteria are different from those for the element accuracy and all-element accuracy rates (i.e., the percentiles were reversed when assigning percentile ranking so that "≥90th" always represents the top 10 percent performance among the MCPs with reportable rates). Appendix A contains the values for the 10th, 25th, 75th, and 90th percentiles for each study indicator listed in this report. Due to the skewed distribution of results for certain indicators, the percentile ranking notation may differ slightly from the percentile rankings noted in Table 1.3 (i.e., 0–≤25th, >25th–<75th, and ≥75th).

Medical Record Procurement Status

After identifying the sample cases, the vendor contacted the providers based on the provider contact information submitted by SCFHP. Table 2.1 shows the medical record procurement status for Santa Clara County. With the exception of cases with valid exclusion reasons, cases without medical records were included in the analysis because the encounters were submitted by SCFHP and the members met the eligibility requirements. In addition, the cases without medical records contributed to the medical record omission results in the Encounter Data Completeness section of this report. For example, when no medical records were submitted for a sampled date of service, all diagnosis codes associated with that date of service were treated as a medical record omission. Therefore, if an MCP had a relatively low medical record submission rate, it would generally have a relatively high medical record omission rate for each key data element.

Table 2.1—Medical Record Procurement Status

MCP/County	Initial Sample Size	Valid Exclusions*	Adjusted Sample Size	Number of Records Submitted	Percentage of Records Submitted	Percentile Ranking
Santa Clara	120	0	120	103	**85.8%**	**25th–75th**
MCP Total	**120**	**0**	**120**	**103**	**85.8%**	**25th–75th**
Statewide Total	**6,360**	**14**	**6,346**	**4,824**	**76.0%**	**25th–75th**

* Although HSAG applied the criteria listed in Table 1.2 during the sampling stage, there were sample cases that did not meet the sampling criteria based on the medical record documentation or the information collected during the record procurement process. Therefore, these cases were excluded from the sample. In general, the invalid samples were caused by the incorrect provider types or place of service codes associated with the encounters. For example, for certain invalid samples, the encounter data showed "Physicians" as the provider type. After contacting the provider, however, it was determined that the provider type was "DME."

Of the original sample of 120 cases, no cases were removed from the study due to the identification of exclusion criteria in the medical record—e.g., services from DME providers, services that occurred in an inpatient setting, etc. Overall, the SCFHP medical record submission rate was 85.8 percent. Table 2.2 lists the reasons for missing medical records, with the main reason being that HSAG was unable to identify valid provider demographic information (e.g., telephone numbers) to procure the medical records. The provider demographic information was sourced from DHCS's encounter data or was submitted by SCFHP for this EDV study. The second reason for the missing medical records was that, according to the provider, members did not access care during the review period. This could mean either that provider information in the encounter data was inaccurate or that although DHCS recorded an encounter, a member did not access care.

Table 2.2—Top Reasons for Missing Medical Records

Non-Submission Reason	Count	Percent
Unable to identify valid provider demographic information	15	88.2%
According to the provider, member did not access care during review period	2	11.8%
MCP Total	**17**	**100.0%**

Note: Total may not equal 100 percent due to rounding.

In addition, 21.4 percent of the procured medical records had a second date of service submitted for validation. The relatively few submissions for a second date of service could be due to various reasons (e.g., the member did not have more than one visit with the same provider in the study period, the provider did not follow the instructions to submit the second date of service, or the second date of service submitted was outside the review period).

Encounter Data Completeness

HSAG evaluated encounter data completeness by identifying differences between the electronic encounter data and the members' medical records. Medical record omission and encounter data omission represent two aspects of encounter data completeness. Medical record omissions occurred when an encounter data element (i.e., *Date of Service*, *Diagnosis Code*, or *Procedure Code*) was not supported by documentation in a member's medical record or the medical record could not be found. Medical record omissions suggest opportunities for improvement within the provider's internal processes, such as billing processes and record documentation.

Encounter data omissions occurred when an encounter data element (i.e., *Date of Service*, *Diagnosis Code*, or *Procedure Code*) was found in a member's medical record but was not present in the electronic encounter data. Encounter data omissions also suggest opportunities for improvement in the areas of claim and encounter submissions and/or processing routes among the providers, MCPs, and DHCS.

HSAG evaluated the *medical record omission* rate and the *encounter data omission* rate using the date of service it selected and the additional date of service the provider selected, if one was available. If more than one additional date of service in the study period was available from the medical record, the provider selected the one closest to HSAG's selected date of service. For both rates, lower values indicate better performance.

Date of Service Completeness

Table 2.3 displays the medical record and encounter data omission rates for the data element *Date of Service* for SCFHP's overall Medi-Cal population, which includes the SPD and non-SPD populations. As discussed in the Methodology section, the overall rate was derived from the SPD rate and non-SPD rate by assigning weights based on the volume of the physician visits from each population. The analyses were conducted at the date of service level.

Table 2.3—Data Element Completeness: Date of Service

	Medical Record Omission			Encounter Data Omission		
MCP/County	Date of Service Identified in Electronic Encounter Data	Rate	Percentile Ranking	Date of Service Identified in Medical Records	Rate	Percentile Ranking
Santa Clara	138	25.0%	25th–75th	107	3.8%	75th–90th
MCP Total	**138**	**25.0%**	**25th–75th**	**107**	**3.8%**	**75th–90th**
Statewide Total	**7,118**	**26.3%**	**25th–75th**	**5,787**	**9.2%**	**25th–75th**

Key findings:

- The relatively high medical record omission rate for the data element *Date of Service* was primarily due to not finding evidence that the date of service existed in the medical records, i.e., the relatively low medical record submission rate as illustrated in Table 2.1 was a contributing factor.
- Compared to the medical record omission rate, the encounter data omission rate for SCFHP was 21.2 percentage points lower. This is partially due to the relatively few medical records with a second date of service to validate (refer to text below Table 2.2). The denominator for encounter data omission is the number of dates of service identified in the medical records, and the numerator is the number of dates of service with no evidence of submission in the electronic encounter data. If no second date of service was available in the medical records for validation, then no date of service would be attributed to the numerator.

Diagnosis Code Completeness

Table 2.4 displays the medical record and encounter data omission rates for the data element *Diagnosis Code* for SCFHP's overall Medi-Cal population, which includes the SPD and non-SPD populations. As discussed in the Methodology section, the overall rate was derived from the SPD rate and non-SPD rate by assigning weights based on the volume of the physician visits from each population. The analyses were conducted at the diagnosis code level.

Table 2.4—Data Element Completeness: Diagnosis Code

	Medical Record Omission			Encounter Data Omission		
MCP/County	Number of Diagnoses Identified in Electronic Encounter Data	Rate	Percentile Ranking	Number of Diagnoses Identified in Medical Records	Rate	Percentile Ranking
Santa Clara	216	34.5%	10th–25th	204	30.7%	25th–75th
MCP Total	**216**	**34.5%**	**10th–25th**	**204**	**30.7%**	**25th–75th**
Statewide Total	**10,511**	**31.6%**	**25th–75th**	**11,171**	**34.6%**	**25th–75th**

Key findings:

- SCFHP's medical record omission rate for the *Diagnosis Code* data element was 9.5 percentage points higher than its *Date of Service* medical record omission rate, indicating that omission of dates of service from medical records was the main factor contributing to *Diagnosis Code* medical record omissions. In the analysis, when no medical records were submitted for a sampled date of service, all diagnosis codes associated with that date of service were treated as medical record omissions.
- SCFHP's encounter data omission rate for the *Diagnosis Code* data element exceeded its encounter data omission rate for *Date of Service* by 26.9 percentage points, indicating that the omission of dates of service from encounter data was only one factor contributing to the *Diagnosis Code* encounter data omissions. Other contributing factors included the following:
  - DHCS's encounter data system only stores up to two diagnosis codes per encounter record. However, a physician visit using a Centers for Medicare & Medicaid Services (CMS) 1500 form could contain more than two diagnosis codes.
  - Coding errors from provider billing offices.
  - A deficiency in SCFHP's data submission processes.

Procedure Code Completeness

Due to the adjudication history and other anomalies in DHCS's data, HSAG identified duplicate line items with the same member, date of service, provider, procedure code, and procedure code modifier. In accordance with national coding standards, certain procedure codes may be submitted more than once for a given visit (e.g., immunization administration) while others are only allowed to be submitted once (e.g., preventive visit code). HSAG removed the duplicate lines for procedure codes that are limited to one submission for a single visit; duplicate line items were included when acceptable. This approach minimized the amount of bias introduced due to the inability to determine true duplicates within the data.

For physician visits evaluated in the EDV study, the DHCS data warehouse contained 287 encounter records for SCFHP after de-duplicating specific line items.There were 105 encounter lines (36.6 percent) that contained non-standard and local procedure codes (collectively referred to as non-standard procedure codes). While encounters containing non-standard procedure codes were included in the study, HSAG could not evaluate the non-standard procedure codes since there were no criteria for comparison. However, by retaining the overall encounters and simply removing the non-standard procedure codes, HSAG was able to validate the dates of service, diagnosis codes, and standard procedure codes. Overall, these 105 encounter lines accounted for 25.4 percent of the sampled physician visits and 25.8 percent of the sampled members as shown in Table 2.5. Additionally, Table 2.6 below displays the non-standard procedure codes excluded from the EDV study.

Table 2.5—Data Element Completeness: Impact of Non-Standard Procedure Codes

Evaluation Unit	MCP Total	Number of Evaluation Units with Non-Standard Procedure Code*	Percent
Member	120	31	25.8%
Physician Visit	138	35	25.4%
Encounter Line	287	105	36.6%

* The non-standard procedure codes are defined as any code starting with "X," "Z," "C0," "CH," or codes starting with "C" and a length of three.

Table 2.6—Data Element Completeness: Distribution of Non-Standard Procedure Codes

Non-Standard Procedure Code	Count	Percent
C07	12	11.4%
C01	10	9.5%
C08	8	7.6%
C09	8	7.6%
C12	7	6.7%
C01B2	5	4.8%
C06	5	4.8%
C53	5	4.8%
Z1034	5	4.8%
C01B3	4	3.8%
C06A	3	2.9%
C69	3	2.9%
C71	3	2.9%
C76	3	2.9%

Non-Standard Procedure Code	Count	Percent
C33	2	1.9%
C39	2	1.9%
C45	2	1.9%
C46	2	1.9%
C65	2	1.9%
X7706	2	1.9%
C01A2	1	1.0%
C01B4	1	1.0%
C06B	1	1.0%
C23	1	1.0%
C38	1	1.0%
C40	1	1.0%
C54	1	1.0%
C82	1	1.0%
C83	1	1.0%
X1500	1	1.0%
X7722	1	1.0%
Z7610	1	1.0%

Table 2.7 displays the medical record and encounter data omission rates for the *Procedure Code* data element for SCFHP's overall Medi-Cal population, which includes the SPD and non-SPD populations. As discussed in the Methodology section, the overall rate was derived from the SPD rate and non-SPD rate by assigning weights based on the volume of the physician visits from each population. The analyses were conducted at the procedure code level.

Table 2.7—Data Element Completeness: Procedure Code

	Medical Record Omission			Encounter Data Omission		
MCP/County	Number of Procedures Identified in Electronic Encounter Data	Rate	Percentile Ranking	Number of Procedures Identified in Medical Records	Rate	Percentile Ranking
Santa Clara	182	40.8%	25th–75th	203	44.7%	<10th
MCP Total	**182**	**40.8%**	**25th–75th**	**203**	**44.7%**	**<10th**
Statewide Total	**12,943**	**43.8%**	**25th–75th**	**9,815**	**22.5%**	**25th–75th**

The potential contributors for the *Procedure Code* medical record omissions are listed below:

- Medical records could not be located for the sampled dates of service. In the analysis, when no medical records were submitted for a sampled date of service, all procedure codes associated with that date of service were treated as medical record omissions.
- The provider did not document the services performed in the medical record, despite submitting the procedure code to SCFHP (and the data subsequently being submitted to DHCS).
- The provider did not perform the service associated with the procedure code that was submitted to SCFHP (and the data subsequently being submitted to DHCS).
- Due to inclusion of the adjudication history, the DHCS encounter data for SCFHP contained additional procedure codes which should not have been included for comparison with the medical records.

SCFHP's encounter data omission rate for the *Procedure Code* data element was worse than the statewide rate by 22.2 percentage points. The potential contributors for the *Procedure Code* encounter data omissions were:

- Dates of service were omitted from the encounter data; therefore, all procedure codes associated with the omitted dates of service were treated as encounter data omissions.
- The provider submitted non-standard codes instead of standard procedure codes. As the non-standard procedure codes in the DHCS encounter data had been removed from the analysis and HSAG reviewers coded the services documented in the medical records using standard procedure codes, submitting non-standard codes would have contributed to the encounter data omission.
- The provider made a coding error, or did not submit the procedure code to SCFHP despite performing the services.
- A deficiency in the resubmission of denied or rejected encounters to DHCS.
- A lag occurred between the provider's performance of the service and submission of the encounter to SCFHP (and/or the data subsequently being submitted to DHCS).

Procedure Code Modifier Completeness

For the physician visits evaluated in the EDV study, the DHCS data warehouse contained 51 encounter records with modifiers for SCFHP. Among them, 12 encounter lines (23.5 percent) contained the non-standard modifier code "ZS." While encounters containing non-standard modifiers were included in the study, HSAG could not evaluate these modifiers since there were no criteria for comparison. However, by retaining the overall encounters and simply removing the non-standard modifiers, HSAG was able to validate the dates of service, diagnosis codes, procedure codes, and standard procedure code modifiers. Overall, these 12 encounter lines with

the "ZS" modifier accounted for 18.5 percent of the sampled physician visits with modifiers and 18.5 percent of the sampled members with modifiers as shown in Table 2.8.

Table 2.8—Data Element Completeness: Impact of Non-Standard Procedure Code Modifier "ZS"

Evaluation Unit	MCP Total	Number of Evaluation Units with Non-Standard Procedure Code Modifier "ZS"	Percent
Member	27	5	18.5%
Physician Visit	27	5	18.5%
Encounter Line	51	12	23.5%

Table 2.9 displays the medical record and encounter data omission rates for the data element *Procedure Code Modifier* for SCFHP's overall Medi-Cal population, which includes the SPD and non-SPD populations. The weighting mechanism for the overall rate was similar to that for the data element *Date of Service*. The analyses were conducted at the modifier level.

Table 2.9—Data Element Completeness: Procedure Code Modifier

	Medical Record Omission			Encounter Data Omission		
MCP/County	Number of Modifiers Identified in Electronic Encounter Data	Rate	Percentile Ranking	Number of Modifiers Identified in Medical Records	Rate	Percentile Ranking
Santa Clara	39	66.6%	**25th–75th**	32	59.8%	**10th–25th**
MCP Total	**39**	**66.6%**	**25th–75th**	**32**	**59.8%**	**10th–25th**
Statewide Total	**2,463**	**58.5%**	**25th–75th**	**1,689**	**46.0%**	**25th–75th**

The potential contributors for the *Procedure Code Modifier* medical record omissions were:

- Medical records could not be located for the sampled dates of services. In the analysis, when no medical records were submitted for a sampled date of service, all procedure code modifiers associated with that date of service were treated as medical record omissions.
- Procedure codes associated with the modifiers were omitted from the medical records.
- The provider did not document the evidence related to the modifiers in the medical record despite submitting the modifiers to SCFHP (and the data subsequently being submitted to DHCS).
- Due to the inclusion of the adjudication history, the DHCS encounter data for SCFHP contained additional procedure codes and the associated modifiers, which should not have been included for comparison with the medical records.

SCFHP's encounter data omission rate for the *Procedure Code Modifier* data element was worse than the statewide rate by 13.8 percentage points. The potential contributors for the *Procedure Code Modifier* encounter data omissions were:

- Dates of service were omitted from the encounter data; therefore, all procedure code modifiers associated with the omitted dates of service were treated as encounter data omissions.
- The procedure codes were omitted from the encounter data; therefore, all procedure code modifiers corresponding to those procedure codes were treated as encounter data omissions.
- The DHCS encounter data format allowed only one modifier field, while it is appropriate for a procedure code to have more than one modifier based on the national coding standards.
- The provider submitted non-standard modifiers rather than the standard procedure code modifiers, made a coding error, or did not submit the procedure code modifiers to SCFHP (and the data subsequently being submitted to DHCS) despite performing the specific services.

Rendering Provider Name Completeness

Table 2.10 displays the medical record and encounter data omission rates for the data element *Rendering Provider Name* for SCFHP's overall Medi-Cal population, which includes the SPD and non-SPD populations. The weighting mechanism for the overall rate was similar to that for the data element *Date of Service*. Because *Rendering Provider Name* was not a data element in the DHCS encounter data, HSAG joined the DHCS encounter data, which contain rendering provider identification numbers, with the DHCS provider data to identify the rendering provider name(s) associated with each sampled case. For certain dates of service, the rendering provider number may have been linked to multiple rendering provider names based on the provider data from DHCS. However, a date of service contributes to only one name when calculating the "Number of Names Identified in DHCS Data System" in Table 2.10.

Table 2.10—Data Element Completeness: Rendering Provider Name

	Medical Record Omission			Encounter Data Omission			
MCP/County	Number of Names Identified in DHCS Data System	Rate	Percentile Ranking	Number of Names Identified in Medical Records	Rate	Percentile Ranking	Percent of Omitted Names Same as Billing Provider Name
Santa Clara	109	23.5%	25th–75th	99	17.5%	≥90th	NA
MCP Total	**109**	**23.5%**	**25th–75th**	**99**	**17.5%**	**≥90th**	**NA**
Statewide Total	**1,491**	**25.0%**	**25th–75th**	**5,618**	**68.1%**	**>25th–<75th**	**16.5%**

Note: HSAG displayed "NA" when the denominator was less than 30.

Key findings:

- The primary reason for the omission of rendering provider names from the medical records was due to not being able to find the dates of services from the medical records. In the analysis, when a medical record was not submitted for a sampled date of service, the rendering provider name associated with that date of service was treated as a medical record omission.
- SCFHP's encounter data omission rate for the *Rendering Provider Name* data element was better than the statewide rate by 50.6 percentage points. The potential contributors for *Rendering Provider Name* encounter data omissions were:
  - Dates of service were omitted from the encounter data; therefore, all rendering provider names associated with the omitted dates of service were treated as encounter data omissions.
  - SCFHP either submitted no rendering provider identification number or an invalid one when submitting encounter data to DHCS; therefore, the rendering provider names were not identifiable using the provider data in the DHCS data system.
  - Although the rendering provider identification numbers in the encounter data were valid, the provider files submitted to DHCS by SCFHP were not complete or accurate; therefore, the rendering provider names were not identifiable.
  - DHCS only retains the most current year of provider data received from SCFHP.
- When the billing provider names were in the encounter data but the rendering provider names were not identified in the DHCS data system, HSAG attempted to evaluate the percentage of omitted rendering provider names that matched the billing provider names, based on medical record documentation. However, results could not be displayed due to a small denominator.

Billing Provider Name Completeness

Table 2.11 displays the medical record and encounter data omission rate for the data element *Billing Provider Name* for SCFHP's overall Medi-Cal population, which includes the SPD and non-SPD populations. The weighting mechanism for the overall rate was similar to that for the data element *Date of Service*. For certain dates of service, the billing provider number may have been linked to multiple billing provider names based on the encounter data from DHCS. However, a date of service only contributes to one name when calculating "Number of Names Identified in Electronic Encounter Data" in Table 2.11.

Table 2.11—Data Element Completeness: Billing Provider Name

	Medical Record Omission			Encounter Data Omission		
MCP/County	Number of Names Identified in Electronic Encounter Data	Rate	Percentile Ranking	Number of Names Identified in Medical Records	Rate	Percentile Ranking
Santa Clara	138	30.1%	25th–75th	99	4.1%	75th–90th
MCP Total	**138**	**30.1%**	**25th–75th**	**99**	**4.1%**	**75th–90th**
Statewide Total	**7,118**	**35.0%**	**10th–25th**	**5,056**	**8.6%**	**25th–75th**

Key findings:

- The primary reason the billing provider names were omitted from the medical records was because the dates of services could not be located in the medical records. In the analysis, when no medical record was submitted for a sampled date of service, the billing provider name associated with that date of service was treated as a medical record omission. In addition, billing provider names are typically not included in medical records, which contributed to the medical record omissions for the *Billing Provider Name* data element.
- Billing provider names were fully populated in the DHCS encounter data. Therefore, all billing provider names reported as encounter data omissions were due to the corresponding dates of service being omitted from the encounter data.

Encounter Data Accuracy

Encounter data accuracy was evaluated for dates of services that existed in both the electronic encounter data and the medical records and had values present in both data sources for the evaluated data element. HSAG considered the encounter data elements (i.e., *Diagnosis Code* and *Procedure Code*) accurate if documentation in the medical record supported the values contained in the electronic encounter data. Higher accuracy rates for each data element indicate better performance.

Diagnosis Code Accuracy

Table 2.12 displays the accuracy rate for the data element *Diagnosis Code* for SCFHP's overall Medi-Cal population, which includes the SPD and non-SPD populations. In addition, errors found in the diagnosis coding were separated into two categories: specificity errors and inaccurate codes. Specificity errors occur when the documentation supports a more specific code than was listed in the DHCS encounter data (i.e., abdominal pain unspecified [789.00] when the provider noted during the exam that the abdominal pain was in the right lower quadrant [789.03]). Specificity errors also include diagnosis codes that do not have the required fourth or fifth digit.

An inaccurate code occurs when the diagnosis code submitted by the provider should have been selected from a different family of codes based on the documentation in the medical record (i.e., 784.0 [headache] versus the documentation supporting 346.90 [Migraine]). Inaccurate and specificity error codes were collectively referred to as "Unmatched Codes" in Table 2.12.

Table 2.12—Data Element Accuracy: Diagnosis Code

	Accuracy Results			Error Types		
MCP/County	Number of Diagnoses Present in Both Sources	Rate	Percentile Ranking	Number of Unmatched Codes	Percent from Inaccurate Code	Percent from Specificity Error
Santa Clara	140	85.0%	25th–75th	20	NA	NA
MCP Total	**140**	**85.0%**	**25th–75th**	**20**	**NA**	**NA**
Statewide Total	**7,225**	**83.6%**	**25th–75th**	**1,100**	**87.0%**	**13.0%**

Note: HSAG displayed "NA" when the denominator was less than 30.

The low number of unmatched codes prevented the display of the error type results for the *Diagnosis Code* data element.

Procedure Code Accuracy

Table 2.13 displays the accuracy rate for the data element *Procedure Code* for SCFHP's overall Medi-Cal population, which includes the SPD and non-SPD populations. In addition, the errors in the procedure codes were categorized into the following three types:

- Higher level of services in medical records: Evaluation and management (E&M) codes documented in the medical records reflected a higher level of service performed by the provider than the E&M code submitted in the encounter. For example, a patient went to the doctor for a follow-up appointment on an earache which was worsening, and all key elements were documented in the patient note. The physician also changed the patient's medication during this visit. The encounter submitted showed a procedure code of 99212 (established patient self-limited or minor problem). With all key elements documented and a worsening condition, this visit level should have been coded as a higher level of service, or 99213 (established patient low to moderate severity).
- Lower level of services in medical records: E&M codes documented in the medical records reflected a lower level of service than the E&M code submitted in the encounter. For example, a provider's notes were missing or were lacking critical documentation elements of the E&M service, or the problem treated did not warrant a high-level visit. For example, a patient went to the doctor for a follow-up appointment on an earache that was improving and required no further treatment, and no other problems were noted during this visit. The encounter submitted showed a procedure code of 99213 (established patient low to moderate severity). With an

improving condition, the medical record reflected a lower level of service provided, or 99212 (established patient self-limited or minor problem).

- Inaccurate codes: The documentation in the medical records did not support the procedure codes billed, or an incorrect procedure code was used in the encounter for scenarios other than the two mentioned above.

Inaccurate codes and codes with higher/lower level of services in medical records were collectively referred to as "Unmatched Codes" in Table 2.13.

Table 2.13—Data Element Accuracy: Procedure Code

	Accuracy Results			Error Types			
MCP/County	Number of Procedures Present in Both Sources	Rate	Percentile Ranking	Number of Unmatched Codes	Percent from Inaccurate Code	Percent from Higher Level of Services in Medical Records	Percent from Lower Level of Services in Medical Records
Santa Clara	106	85.1%	25th–75th	16	NA	NA	NA
MCP Total	**106**	**85.1%**	**25th–75th**	**16**	**NA**	**NA**	**NA**
Statewide Total	**7,391**	**77.6%**	**25th–75th**	**1,473**	**35.8%**	**19.4%**	**44.8%**

Note: HSAG displayed "NA" when the denominator was less than 30.

Key findings:

- SCFHP's accuracy rate for the *Procedure Code* data element was below the 75th percentile by 0.5 percentage points.
- The low number of unmatched codes did not allow for a display of error type results for the *Procedure Code* data element.

Procedure Code Modifier Accuracy

Table 2.14 displays the accuracy rate for the data element *Procedure Code Modifier* for SCFHP's overall Medi-Cal population, which includes the SPD and non-SPD populations. The errors for this data element could not be separated into sub-categories and therefore are not presented in Table 2.14.

Table 2.14—Data Element Accuracy: Procedure Code Modifier

	Accuracy Results		
MCP/County	Number of Modifiers Present in Both Sources	Rate	Percentile Ranking
Santa Clara	14	NA	**NA**
MCP Total	**14**	**NA**	**NA**
Statewide Total	**989**	**99.5%**	**25th–75th**

Note: HSAG displayed "NA" when the denominator was less than 30.

SCFHP's low number of procedure code modifiers present in both sources did not allow for a display of either the accuracy rate or the percentile ranking.

Rendering Provider Name Accuracy

Table 2.15 displays the accuracy rate for the data element *Rendering Provider Name* for SCFHP's overall Medi-Cal population, which includes the SPD and non-SPD populations. For certain dates of service, the rendering provider number in the DHCS encounter data may have been linked to multiple rendering provider names in the provider data from DHCS. If one of the rendering provider names from the DHCS data approximately matched the name in the medical records (i.e., a typographical error, or "Rob Smith" versus "Robert Smith"), HSAG considered the names from both sources as a match. In addition, when calculating the "Number of Names Present in Both Sources" presented in Table 2.15, a date of service contributes to only one name.

Table 2.15—Data Element Accuracy: Rendering Provider Name

	Accuracy Results			Error Types		
MCP/County	Number of Names Present in Both Sources	Rate	Percentile Ranking	Number of Unmatched Names	Percent from Incorrect Names	Percent from Illegible Names in Medical Records
Santa Clara	82	72.7%	**25th–75th**	24	NA	NA
MCP Total	**82**	**72.7%**	**25th–75th**	**24**	**NA**	**NA**
Statewide Total	**1,119**	**63.0%**	**25th–75th**	**385**	**76.8%**	**23.2%**

Note: HSAG displayed "NA" when the denominator was less than 30.

SCFHP's accuracy rate for the *Rendering Provider Name* data element was better than the statewide rate by nearly 10 percentage points. The low number of unmatched names did not allow for a display of error type percentages for the *Rendering Provider Name* data element.

Billing Provider Name Accuracy

Table 2.16 displays the accuracy rate for the data element *Billing Provider Name* for SCFHP's overall Medi-Cal population, which includes the SPD and non-SPD populations. For certain dates of service, based on the encounter data from DHCS, the billing provider number may have been linked to multiple billing provider names. As long as one of the names in the electronic encounter data and the medical records approximately matched another, the two were treated as a single match (i.e., a typographical error, or "Rob Smith" versus "Robert Smith"). In addition, when calculating the "Number of Names Present in Both Sources" presented in Table 2.16, a date of service contributes to only one name.

Table 2.16—Data Element Accuracy: Billing Provider Name

	Accuracy Results			Error Types		
MCP/County	Number of Names Present in Both Sources	Rate	Percentile Ranking	Number of Unmatched Names	Percent from Incorrect Names	Percent from Illegible Names in Medical Records
Santa Clara	95	69.2%	25th–75th	29	NA	NA
MCP Total	**95**	**69.2%**	**25th–75th**	**29**	**NA**	**NA**
Statewide Total	**4,577**	**68.6%**	**25th–75th**	**1,178**	**95.5%**	**4.5%**

Note: HSAG displayed "NA" when the denominator was less than 30.

The low number of unmatched names did not allow for display of error type percentages for the *Billing Provider Name* data element.

All-Element Accuracy

Table 2.17 shows the percentage of dates of service present both in the DHCS data warehouse and in the medical records with exactly the same values for all key data elements in Table 1.1. The denominator is the total number of dates of service that matched in both data sources. The numerator is the total number of dates of service with exactly the same values for all key data elements. Higher all-element accuracy rates indicated that the values populated in the DHCS data warehouse are more complete and accurate for all key data elements when compared to the medical records.

Table 2.17—All-Element Accuracy

MCP/County	Number of Dates of Service Present in Both Sources	Rate	Percentile Ranking
Santa Clara	103	7.8%	**75th–90th**
MCP Total	**103**	**7.8%**	**75th–90th**
Statewide Total	**5,230**	**4.3%**	**>25th–<75th**

SCFHP's higher than statewide rate but, nonetheless, empirically low all-element accuracy rate was due to medical record omission, encounter data omission, and element inaccuracy within all five key data elements (i.e., *Diagnosis Code*, *Procedure Code*, *Procedure Code Modifier*, *Rendering Provider Name*, and *Billing Provider Name*), with *Procedure Code* contributing most and *Procedure Code Modifier* contributing least to the all-element inaccuracy.

Conclusions

Encounter Data Completeness

Table 3.1 displays the medical record and encounter data omission rates for each key data element for SCFHP. For both indicators, lower rates indicate better performance.

Table 3.1—Encounter Data Completeness Summary for SCFHP

	Medical Record Omission Rate			Encounter Data Omission Rate		
Key Data Elements	**MCP**	**Statewide**	**Percentile Ranking**	**MCP**	**Statewide**	**Percentile Ranking**
Date of Service	**25.0%**	26.3%	**25th–75th**	**3.8%**	9.2%	**75th–90th**
Diagnosis Code	**34.5%**	31.6%	**10th–25th**	**30.7%**	34.6%	**25th–75th**
Procedure Code	**40.8%**	43.8%	**25th–75th**	**44.7%**	22.5%	**<10th**
Procedure Code Modifier	**66.6%**	58.5%	**25th–75th**	**59.8%**	46.0%	**10th–25th**
Rendering Provider Name	**23.5%**	25.0%	**25th–75th**	**17.5%**	68.1%	**≥90th**
Billing Provider Name	**30.1%**	35.0%	**25th–75th**	**4.1%**	8.6%	**75th–90th**

Overall, the medical record omission rates for SCFHP ranged from 23.5 percent (*Rendering Provider Name*) to 66.6 percent (*Procedure Code Modifier*). Four SCFHP's medical record omission rates were slightly better than the respective statewide rates, and the remaining two rates were worse than the statewide rates by 2.9 and 8.1 percentage points for the *Diagnosis Code* and *Procedure Code Modifier*, respectively. When compared to other MCPs' performance, SCFHP received a percentile ranking of "25th–75th" for five of the medical record omission rates and a percentile ranking of "10th–25th" for one rate. These findings suggest an average level of completeness among key encounter data elements when compared to members' medical records.

As determined during this review, the most common reasons for medical record omissions were:

- The medical record could not be located for the sampled dates of services.
- The provider did not document the services performed in the medical record despite submitting a claim/encounter.
- A data entry error occurred for one or more elements (e.g., *Date of Service*).
- The provider did not perform the service.

- Due to inclusion of the adjudication history, the DHCS encounter data for SCFHP contained additional services which should not have been included for comparison with the medical records.
- Billing provider names are generally not part of the information included in medical records.

For encounter data omissions, SCFHP's rates varied from 3.8 percent (*Date of Service*) to 59.8 percent (*Procedure Code Modifier*). Four of SCFHP's encounter data omission rates were better than the respective statewide rates with the *Rendering Provider Name* encounter omission rate better than the statewide rate by 50.6 percentage points (i.e., received a percentile ranking of "≥90th"). However, SCFHP performed worse than the statewide encounter data omission rates by 22.2 percentage points and by 13.8 percentage points for the *Procedure Code* and *Procedure Code Modifier* data elements, respectively. An opportunity exists for SCFHP to improve the electronic encounter data completeness by increasing the percentage of key data elements aligning with medical record information.

The most common reasons for encounter data omissions were:

- The provider's billing office made a coding error.
- DHCS's encounter data system contained certain restrictions related to encounter submission requirements that affected the processing of some encounters (e.g., number of diagnosis or procedure code modifier fields, DHCS only kept the most current year of provider data from the MCPs).
- A deficiency occurred in SCFHP's encounter data submission processes, or a deficiency occurred in the resubmission of denied or rejected encounters to DHCS.
- The provider submitted the non-standard codes instead of the standard procedure codes or procedure code modifiers.
- A lag occurred between the provider's performance of the service and submission of the encounter to SCFHP (and/or the data subsequently being submitted to DHCS).
- SCFHP populated an invalid rendering provider identification number when submitting encounter data to DHCS; or the provider files SCFHP submitted to DHCS were not complete or accurate.

Encounter Data Accuracy

Table 3.2 displays the element accuracy rates for each key data element and the all-element accuracy rate for SCFHP. For both indicators, higher rates indicate better performance.

Table 3.2—Encounter Data Accuracy Summary for SCFHP

Key Data Elements	MCP	Statewide	Percentile Ranking	Main Error Type
Diagnosis Code	**85.0%**	83.6%	**25th–75th**	NA
Procedure Code	**85.1%**	77.6%	**25th–75th**	NA
Procedure Code Modifier	**NA**	99.5%	**NA**	—
Rendering Provider Name	**72.7%**	63.0%	**25th–75th**	NA
Billing Provider Name	**69.2%**	68.6%	**25th–75th**	NA
All-Element Accuracy	**7.8%**	**4.3%**	**75th–90th**	—

Note: HSAG displayed "NA" when the denominator was less than 30. HSAG displayed "—" when the error type analysis was not applicable to a data element.

In general, when key data elements were present in the DHCS data system and the medical records, and evaluated separately for the individual data elements, the key data elements were found to be relatively accurate for SCFHP with all four reportable element accuracy rates higher than the respective statewide rates. When comparing the performance among MCPs, all four key data elements with reportable rates received a percentile ranking of "25th–75th". In addition, low denominators prevented the display of error type results for these four key data elements.

Although SCFHP's all-element accuracy rate was better than the statewide rate, only 7.8 percent of the dates of service present in both data sources accurately represented all five data elements (i.e., *Diagnosis Code*, *Procedure Code*, *Procedure Code Modifier*, *Rendering Provider Name*, and *Billing Provider Name*) when compared to members' medical records. The overall accuracy findings indicated at least one inaccurate data element for more than 92 percent of the dates of service reviewed in this study. While all five key data elements contributed to SCFHP's empirically low all-element accuracy rate, the *Procedure Code* data element contributed most and *Procedure Code Modifier* contributed least.

Recommendations

Based on the study findings for SCFHP, HSAG recommends the following:

- Accurate rendering provider information in the DHCS data system is crucial to locating medical records for future medical record review activities. Therefore, SCFHP should consider the following actions:
  - Submit complete and accurate rendering provider identification numbers in the encounter data to DHCS.
  - Submit complete and accurate provider data to DHCS so that DHCS can find the correct rendering provider names and contact information by linking the rendering provider identification numbers between the encounter data and provider data. For example, all rendering provider identification numbers in the encounter data should exist in the provider data submitted to DHCS and should represent the rendering providers, not the billing providers.
- Currently, DHCS is transitioning from its current encounter data system to a new Post Adjudicated Claims and Encounters System (PACES), and the new PACES will have the capacity to accept more than two diagnosis code fields and more than one procedure code modifier field. SCFHP should ensure that the additional diagnosis codes and procedure code modifiers are submitted to DHCS after the system transition.
- SCFHP should avoid using local procedure codes or local procedure code modifiers for the encounter data submitted to DHCS.
- SCFHP should investigate the reasons for the relatively high medical record omission rate for the *Procedure Code Modifier* data element and develop strategies to improve rate.
- SCFHP should explore the reasons for the relatively high encounter data omission rates for the *Procedure Code* and *Procedure Code Modifier* data elements and take actions to improve rates.
- SCFHP should consider developing periodic provider education and training regarding encounter data submissions, medical record documentation, and coding practices. These activities should include a review of both State and national coding requirements and standards, especially for new providers contracted with SCFHP.
- SCFHP should perform periodic reviews of claims/encounters submitted by the providers to verify appropriate coding and completeness to ensure encounter data quality.

Study Limitations

When evaluating the findings presented in this report, it is important to understand the following limitations associated with this study:

- Successful evaluation of members' medical records depends on the ability to locate and collect complete and accurate medical records. Therefore, validation results could have been affected by medical records that could not be located (e.g., missing or wrong provider information resulted in failing to procure the medical records) and medical records that were incomplete (e.g., missing pages).
- Since the study findings relied solely on the documentation contained in members' medical records, results are dependent on the overall quality of physicians' medical records. For example, a physician may have performed a service but did not document it in the member's medical record. As such, HSAG would have counted this scenario as a negative finding. This study was unable to distinguish cases in which a service was not performed versus a service that was performed but not documented in the medical record.
- The findings for the data elements *Billing Provider Name* and *Rendering Provider Name* should be reviewed with caution since rendering provider names and billing provider names are not generally included or legible in members' medical records.
- Certain limitations in the DHCS data warehouse also affected the results. For example, the DHCS data warehouse only stores two data fields for the diagnosis codes while the medical records may indicate more than two codes. In addition, the DHCS data warehouse only contains the most recent provider data, which may lead to missing rendering provider names even though the rendering provider identification numbers were submitted in the encounter data.
- The findings from this study are associated with encounters from calendar year 2012 for the non-SPD population and encounters from the last seven months of calendar year 2012 for the SPD population; as such, the results may not reflect the current quality of DHCS's encounter data.
- The findings from this study are associated with physician visits and may not be applicable to the other claim types.

Study Indicator	Data Element	Number of MCPs with Reportable Rates	P10	P25	P75	P90
Medical record submission	—	24	67.9%	72.6%	87.2%	95.9%
Medical record omission	Date of Service	24	11.8%	17.9%	26.6%	33.0%
	Diagnosis Code	24	16.3%	25.9%	32.9%	40.7%
	Procedure Code	24	21.0%	31.2%	43.8%	61.3%
	Procedure Code Modifier	21	29.1%	47.6%	69.4%	71.9%
	Rendering Provider Name	13	11.0%	19.2%	32.9%	62.5%
	Billing Provider Name	24	19.6%	27.8%	34.2%	46.8%
Encounter data omission	Date of Service	24	1.9%	6.9%	12.0%	17.1%
	Diagnosis Code	24	25.1%	28.9%	39.7%	44.4%
	Procedure Code	24	12.0%	16.3%	27.7%	33.5%
	Procedure Code Modifier	17	24.0%	28.3%	52.4%	74.7%
	Rendering Provider Name	24	22.6%	38.0%	100.0%	100.0%
	Billing Provider Name	24	2.1%	5.1%	12.1%	18.2%
Element accuracy	Diagnosis Code	24	74.6%	81.8%	87.6%	90.7%
	Procedure Code	24	61.3%	70.9%	85.6%	90.8%
	Procedure Code Modifier	11	94.4%	95.8%	100.0%	100.0%
	Rendering Provider Name	11	49.3%	57.4%	86.9%	95.6%
	Billing Provider Name	24	52.6%	65.1%	79.2%	88.1%
All-element accuracy	—	24	0.0%	0.0%	7.5%	18.3%

Note: For the medical record omission and encounter data omission rates, lower rates represent better performance. In addition, HSAG displayed ”—“ when the data element was not applicable to a study indicator.