NC DEPARTMENT OF
HEALTH AND
HUMAN SERVICES
Division of Health Benefits

2023–2024 Encounter Data Validation Aggregate Report

September 2024

HSAG HEALTH SERVICES ADVISORY GROUP

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1. Executive Summary

Introduction

Accurate and complete encounter data are critical to the success of a managed care program. Therefore, the North Carolina Department of Health and Human Services, Division of Health Benefits (DHB) requires its prepaid health plans (PHPs) to submit high-quality encounter data. During state fiscal year (SFY) 2023–2024, DHB contracted Health Services Advisory Group, Inc. (HSAG), to conduct an encounter data validation (EDV) study.

Methods

In alignment with the Centers for Medicare & Medicaid Services (CMS) External Quality Review (EQR) *Protocol 5. Validation of Encounter Data Reported by the Medicaid and CHIP [Children's Health Insurance Program] Managed Care Plan: An Optional EQR-Related Activity*, February 2023 (CMS EQR Protocol 5),[1] HSAG conducted the following core evaluation activity for the EDV study:

- Comparative analysis—analysis of DHB's electronic encounter data completeness and accuracy through a comparative analysis between DHB's electronic encounter data and the data extracted from the PHPs' encounter data systems. The goal of this activity was to evaluate the extent to which the encounter data in DHB's Encounters Processing Solution (EPS) database are complete and accurate for encounters with dates of service between July 1, 2022, and June 30, 2023. This activity corresponds to Activity 3: Analyze Electronic Encounter Data in the CMS EQR Protocol 5.

Comparative Analysis Findings

Record Completeness

Table 1-1 displays the percentage of records present in the PHP-submitted files that were not found in DHB's files (record omission) and the percentage of records present in DHB's files but not present in the PHP-submitted files (record surplus). Overall, record omission and surplus rates were low, with only a few instances where rates were greater than 5.0 percent.

[1] Department of Health and Human Services, Centers for Medicare & Medicaid Services. *Protocol 5. Validation of Encounter Data Reported by the Medicaid and CHIP Managed Care Plan: An Optional EQR-Related Activity*, February 2023. Available at: https://www.medicaid.gov/medicaid/quality-of-care/downloads/2023-eqr-protocols.pdf. Accessed on: Aug 9, 2024.

Table 1-1—Record Omission and Surplus Rates by PHP and Encounter Type

PHP	Ameri-Health	Carolina Complete	Healthy Blue	United-Healthcare	WellCare	Statewide
Professional Encounters						
Record Omission	7.6%	0.3%	1.7%	2.2%	0.1%	**2.2%**
Record Surplus	0.1%	1.4%	0.3%	13.0%	1.3%	**4.0%**
Institutional Encounters						
Record Omission	17.4%	2.6%	1.4%	0.6%	0.4%	**4.2%**
Record Surplus	0.4%	10.9%	0.1%	2.6%	10.6%	**4.7%**
Pharmacy Encounters						
Record Omission	1.4%	2.1%	1.0%	2.3%	1.2%	**1.4%**
Record Surplus	0.5%	1.8%	0.1%	2.2%	1.3%	**0.9%**

Red text indicates rates greater than 5.0 percent.

Key Findings: Table 1-1

- **AmeriHealth Caritas North Carolina, Inc.** (**AmeriHealth**) had high record omission rates for both professional and institutional encounters (7.6 percent and 17.4 percent, respectively). These high rates were due to **AmeriHealth** submitting records marked as paid to HSAG, while submitting the same records marked as denied to DHB. The EDV study restricted data to paid lines; however, if lines marked as denied that were part of a claim marked as paid at the header level were included in the analysis, both record omission rates for **AmeriHealth** would drop to 0.7 percent or less.
- Professional encounter record surplus rates were high for **UnitedHealthcare of North Carolina, Inc.** (**UnitedHealthcare**) at 13.0 percent, while institutional encounter record surplus rates were high for **Carolina Complete Health, Inc.** (**Carolina Complete**) at 10.9 percent and for **WellCare of North Carolina, Inc.** (**WellCare**) at 10.6 percent. For all PHPs, the high surplus rates were due to the PHPs not submitting all voided records to HSAG. When restricting the surplus rate to final, paid claims, rates would drop to 5.1 percent or less for these instances.
- All record omission and surplus rates for pharmacy encounters were less than 5.0 percent.

Data Element Completeness and Accuracy

Table 1-2 presents the key data elements for which one or more PHPs had either a high element omission rate (the percentage of records with values present in the PHPs' submitted data but not in DHB's submitted data), high element surplus rate (the percentage of records with values present in DHB's submitted data but not in the PHPs' submitted data), or a low element-level accuracy rate (the percentage of records with the same non-missing values for a given data element in both the DHB's submitted data and the PHPs' submitted data). All key data elements not listed had positive results.

Table 1-2—Key Data Elements With Element Omission or Element Surplus Rates Greater Than 5.0 Percent and Element-Level Accuracy Rates Lower Than 95.0 Percent

PHP	Ameri-Health	Carolina Complete	Healthy Blue	United-Healthcare	WellCare	Statewide
Professional Encounters (14 Key Data Elements)						
Element Omission						
Rendering Provider NPI	64.4%	7.5%	0.0%	1.7%	0.1%	**10.8%**
Referring Provider NPI	0.0%	5.1%	0.0%	0.0%	<0.1%	**0.6%**
Rendering Provider Taxonomy Code	64.4%	7.6%	<0.1%	3.0%	0.1%	**11.1%**
Element-Level Accuracy						
Header Paid Amount	91.5%	99.7%	98.4%	96.6%	99.6%	**97.4%**
Detail Paid Amount	91.5%	99.9%	98.4%	96.6%	99.7%	**97.5%**
Institutional Encounters (20 Key Data Elements)						
Element Omission						
Detail Service To Date	0.0%	0.0%	0.0%	15.3%	0.0%	**3.3%**
Detail Service From Date	0.0%	0.0%	0.0%	15.3%	0.0%	**3.3%**
Secondary Diagnosis Codes	0.0%	0.0%	0.0%	0.0%	17.1%	**3.8%**
Element-Level Accuracy						
Header Service To Date	100%	100%	>99.9%	100%	86.1%	**96.9%**
Secondary Diagnosis Codes	>99.9%	99.9%	>99.9%	99.9%	16.1%	**81.1%**
Service Units	99.0%	98.2%	>99.9%	83.8%	99.3%	**96.0%**
Surgical Procedure Codes	86.4%	89.8%	90.5%	92.1%	93.0%	**91.7%**
Type of Bill Code	92.5%	84.1%	99.9%	79.6%	100%	**92.3%**
Pharmacy Encounters (7 Key Data Elements)						
Element-Level Accuracy						
Days Supply	86.8%	66.3%	47.8%	70.0%	69.5%	**62.7%**
Paid Amount	87.2%	100%	100%	70.0%	100%	**93.1%**

Element Omission or Element Surplus: Red text indicates rates greater than 5.0 percent.
Element-Level Accuracy: Red text indicates rates lower than 95.0 percent.

Key Findings: Table 1-2

Professional Encounters:

- For **AmeriHealth** and **Carolina Complete**, the *Rendering Provider NPI* and *Rendering Provider Taxonomy Code* data elements had high element omission rates. For both PHPs, nearly all records had the same values populated for both the *Rendering Provider NPI* and *Billing Provider* in the PHP-submitted data when the *Rendering Provider NPI* was missing in the DHB-submitted data. Additionally, whenever *Rendering Provider NPI* was missing in the DHB-submitted data, *Rendering Provider Taxonomy* Code was also missing.
- **Carolina Complete** also had a high element omission rate for the *Referring Provider NPI* data element. In nearly all records in the **Carolina Complete**-submitted data that contained a *Referring Provider NPI* value when the DHB-submitted data did not contain this value, the *Referring Provider NPI* matched the *Rendering Provider NPI*.
- **AmeriHealth** was the only PHP to have low element-level accuracy rates. In records with mismatching values for the *Header Paid Amount* and *Detail Paid Amount* data elements, the DHB-submitted data almost always contained a higher value than the PHP-submitted data. Interestingly, nearly all of these records were value-based payment claims.

Institutional Encounters:

- **UnitedHealthcare** had high element omission rates for the *Detail Service From Date* and *Detail Service To Date* data elements. In the records where the PHP-submitted data contained values when the DHB-submitted data did not contain values, **UnitedHealthcare**'s *Detail Service From Date* matched the *Header Service From Date,* and the *Detail Service To Date* matched the *Header Service To Date*.
- **WellCare** had a high element omission rate for the *Secondary Diagnosis Codes* data element. For the records where DHB's data did not contain *Secondary Diagnosis Codes*, **WellCare**'s *Secondary Diagnosis Codes* data element matched the *Primary Diagnosis Code*.
- **WellCare** had low accuracy rates for the *Header Service To Date* and *Secondary Diagnosis Codes* data elements. For records with mismatching values in the *Header Service To Date* data element, **WellCare** had the same values populated in the *Header Service From Date* and the *Header Service To Date*. For records with mismatching values in the *Secondary Diagnosis Codes* data element, **WellCare**'s data almost always had more *Secondary Diagnosis Codes* than the DHB-submitted data.
- **UnitedHealthcare** had a low accuracy rate for the *Service Units* data element, which was due to a zero value populated in the **UnitedHealthcare**-submitted data but a non-zero value populated in the DHB-submitted data for nearly all records with mismatching values.
- All PHPs had low accuracy rates for the *Surgical Procedure Codes* data element. For the discrepant records, PHPs' data always had a greater number of surgical procedure codes compared to DHB-submitted data.
- **AmeriHealth**, **Carolina Complete**, and **UnitedHealthcare** each had low accuracy rates for the *Type of Bill Code* data element. For the records with mismatching values, the PHPs' data almost

always differed from the DHB-submitted data in the third digit, which specifies the billing frequency.

Pharmacy Encounters:

- All PHPs had low accuracy rates for the *Days Supply* data element, while **AmeriHealth** and **UnitedHealthcare** also had low accuracy rates for the *Paid Amount* data element. In nearly all records for all PHPs that contained a mismatch for both data elements, the DHB-submitted data contained a negative value, whereas the PHP-submitted data contained the same number as a positive value. Interestingly, nearly all of these records were marked as void.

Recommendations

To improve the quality of PHPs' encounter data submissions, HSAG offers the following recommendations to assist DHB and the PHPs in addressing opportunities for improvement.

- DHB should collaborate with the PHPs to investigate root causes of record omission and record surplus rates greater than 5.0 percent.
  - Since all instances of high record omission and record surplus rates were due to voided claims, DHB should collaborate with the PHPs to ensure voided claims are submitted correctly.
- DHB should collaborate with the PHPs to investigate root causes of element omission and element surplus rates greater than 5.0 percent and accuracy rates lower than 95.0 percent. Doing so will allow DHB and the PHPs to address any issues related to encounter data completeness and accuracy.
  - Specifically, DHB should collaborate with the PHPs on submission guidelines for *Surgical Procedure Codes* since all PHPs submitted more values to HSAG than to DHB for records that had mismatching values.
  - DHB should also ensure PHPs submit the third digit (i.e., the frequency code) in the *Type of Bill Code* data element accurately.
  - For pharmacy encounters, DHB should ensure PHPs submit voided encounters correctly and accurately, specifically for values populated in the *Days Supply* and *Paid Amount* data elements.

2. Overview and Methodology

Overview

Accurate and complete encounter data are critical to the success of a managed care program. Therefore, DHB requires its contracted PHPs to submit high-quality encounter data. DHB relies on the quality of these encounter data submissions to accurately and effectively monitor and improve the program's quality of care, generate accurate and reliable reports, develop appropriate capitated rates, and obtain complete and accurate utilization information.

During SFY 2023–2024, DHB contracted HSAG to conduct an EDV study. In alignment with the CMS EQR Protocol 5, HSAG conducted the following core evaluation activity for the EDV study:

- Comparative analysis—analysis of DHB's electronic encounter data completeness and accuracy through a comparative analysis between DHB's electronic encounter data and the data extracted from the PHPs' encounter data systems.

HSAG conducted the EDV study for the following five PHPs:

- **AmeriHealth Caritas North Carolina, Inc.** (**AmeriHealth**)
- **Carolina Complete Health, Inc.** (**Carolina Complete**)
- **Healthy Blue of North Carolina** (**Healthy Blue**)
- **UnitedHealthcare of North Carolina, Inc.** (**UnitedHealthcare**)
- **WellCare of North Carolina, Inc.** (**WellCare**)

Methodology

The goal of the comparative analysis was to evaluate the extent to which encounters the PHPs submitted to DHB, directly or indirectly via their subcontractors, were complete and accurate based on corresponding information stored in the PHPs' claims data systems. The encounter data were considered complete if the data reflected all services rendered to beneficiaries, and all data within the PHPs' encounter data systems had been submitted and successfully imported into DHB's EPS. For encounter data to be considered accurate, the data that the PHPs maintain should represent the actual services rendered; when they were rendered (i.e., the date of service); to whom they were rendered (i.e., the beneficiary); by whom they were rendered (i.e., the provider); and, if a payment was rendered in connection to the service, how much was paid. HSAG performed the comparative analysis on encounter data from both DHB and the PHPs with dates of service between **July 1, 2022**, and **June 30, 2023**. To ensure that the extracted data from both sources represented the same universe of encounters, the data targeted professional, institutional, and pharmacy encounters that the PHPs submitted to DHB on or before December 31, 2023, with a paid/adjudication date on or before November 30, 2023. These anchor

dates allowed enough time for the encounters to be submitted, processed, and available for evaluation in DHB's EPS. The comparative analysis involved three key steps:

- HSAG developed a data requirements document that defined the data submission requirements for the PHPs' encounter data. HSAG hosted a technical assistance meeting with the PHPs to review the data requirements document.
- HSAG conducted file reviews of submitted encounters from DHB and the PHPs.
- HSAG conducted a comparative analysis between DHB's encounter data and the PHPs' encounter data.

Development of Data Submission Requirements and Technical Assistance

Since DHB routinely extracts and submits data to HSAG monthly, HSAG developed a data submission requirements document to request encounter data from the PHPs. This document included a brief description of the EDV study, a description of the review period, encounter data specifications, required data elements, and procedures for submitting the requested data to HSAG. The PHPs were requested to submit encounters with dates of service between **July 1, 2022**, and **June 30, 2023**, and to only include voided encounters and paid encounters that were in a final, fully adjudicated status as of November 30, 2023. Additionally, HSAG requested that the PHPs extract encounters that were submitted to DHB prior to December 31, 2023.[2] These anchor dates allowed sufficient time for the encounters in the study period to be submitted, processed, and available for evaluation in DHB's EPS.

HSAG conducted a technical assistance meeting with the PHPs to facilitate the accurate and timely submission of the requested data. The PHPs were responsible for coordinating with their subcontractors to extract the requested data, if applicable. The technical assistance meeting occurred approximately one week after distributing the data requirements documents, allowing the PHPs time to review and prepare their questions before the meeting. During the technical assistance meeting, HSAG's EDV team introduced the EDV study, reviewed the data submission requirements document, and addressed questions related to data preparation and extraction. The PHPs were given eight weeks to extract and prepare the requested files for submission to HSAG.

Preliminary File Review

Following receipt of DHB's and the PHPs' data submissions, HSAG conducted a preliminary file review to determine if any data issues existed in the data that would warrant a resubmission. The preliminary file review included answering the following basic data quality questions:

- Data extraction—Were the data extracted based on the data requirements document?

[2] Due to a historical resubmission project, UnitedHealthcare's submission to HSAG included professional encounters that were submitted to DHB after December 31, 2023. HSAG included these encounters in the analysis as they represented encounters during the study period.

- Percentage present—Were the required data elements present on the file and did they have values in those data elements?
- Percentage of valid values—Were the data populated with valid values (e.g., valid International Classification of Diseases, 10th Revision [ICD-10] codes in the diagnosis code data elements)?
- Evaluation of matching claim numbers—What was the percentage of matching claim numbers between DHB's submitted data and the PHPs' submitted data?

Based on the preliminary file review results, HSAG generated PHP-specific reports that highlighted major findings requiring the PHPs to resubmit data, if needed. HSAG included DHB in the communications with the PHPs regarding file review findings, allowing DHB to share its input.

Conduct Comparative Analysis

Once HSAG received and processed the final data, HSAG conducted a series of analyses, which were divided into three analytic sections: Record Completeness, Data Element Completeness and Accuracy, and Overall Encounter Accuracy.

Record Completeness

First, HSAG assessed record-level data completeness using the following metrics for each encounter data type:

- **Record Omission**—The number and percentage of records present in the PHPs' submitted files but not in DHB's EPS.
- **Record Surplus**—The number and percentage of records present in DHB's EPS but not in the PHPs' submitted files.

Data Element Completeness and Accuracy

Second, based on the number of records present in both data sources, HSAG further examined completeness and accuracy for the key data elements listed in Table 2-1. The analyses focused on an element-level comparison for each data element.

Table 2-1—Key Data Elements for Comparative Analysis

Key Data Elements	Professional	Institutional	Pharmacy
Beneficiary Identification (ID)	✓	✓	✓
Header Service From Date		✓	
Header Service To Date		✓	
Detail Service From Date	✓	✓	
Detail Service To Date	✓	✓	

Key Data Elements	Professional	Institutional	Pharmacy
Date of Service			✓
Billing Provider National Provider Identifier (NPI)	✓	✓	✓
Rendering Provider NPI	✓		
Attending Provider NPI		✓	
Referring Provider NPI	✓	✓	
Prescribing Provider NPI			✓
Rendering Provider Taxonomy Code	✓		
Primary Diagnosis Code	✓	✓	
Secondary Diagnosis Codes	✓	✓	
Admission Diagnosis Code		✓	
Current Procedural Terminology/Healthcare Common Procedure Coding System (CPT/HCPCS) Code	✓	✓	
CPT/HCPCS Code Modifiers	✓	✓	
Service Units	✓	✓	
Surgical Procedure Codes		✓	
Revenue Code		✓	
Diagnosis Related Group (DRG)		✓	
Type of Bill Code		✓	
National Drug Code (NDC)			✓
Days Supply			✓
Header Paid Amount	✓	✓	
Detail Paid Amount	✓	✓	
Paid Amount			✓

For the matching records between DHB's data and the PHPs' data from the first step, HSAG evaluated the element-level completeness based on the following metrics:

- **Element Omission**—The number and percentage of records with values present in the PHPs' submitted files but not in DHB's EPS.
- **Element Surplus**—The number and percentage of records with values present in DHB's EPS but not in the PHPs' submitted files.

- **Element Missing Value**—The number and percentage of records with values missing from both DHB's EPS and the PHPs' submitted files.

Element-level accuracy was limited to those records with values present in both the PHPs' submitted data and DHB's EPS. For each key data element, HSAG determined the number and percentage of records with the same non-missing values in both the PHPs' submitted files and DHB's EPS (**element accuracy**).

For the records present in both DHB's data and the PHPs' data, HSAG evaluated the number and percentage of records with the same values (missing or non-missing) for all key data elements relevant to each encounter data type (**all-element accuracy**).

Overall Encounter Accuracy

Finally, HSAG assessed the **overall encounter accuracy** by evaluating the encounter contents across all claim lines, regardless of line number. This analysis compared each PHP's data file to the respective DHB data file and vice versa (e.g., **AmeriHealth**'s professional encounters were compared to DHB's professional encounters and DHB's professional encounters were compared to **AmeriHealth**'s professional encounters). Since detail lines were not provided for pharmacy encounters, the following **overall encounter accuracy** metrics were calculated for professional and institutional encounters only:

- **No Match**—The percentage of claim numbers that were present in one data file and not the other.
- **Partial Match**—The percentage of claim numbers that were present in both data files with one or more detail lines/data elements that were not found in the other data file.
- **Match**—The percentage of claim numbers that were present in both data files with all detail lines and data elements also found in both data files.

3. Comparative Analysis Results and Findings

Background

This section presents findings from comparative analysis results of the professional, institutional, and pharmacy encounter data maintained by DHB and the PHPs. The analysis examined the extent to which encounters submitted by the PHPs and maintained in DHB's EPS (and the data that DHB subsequently routinely extracted and submitted to HSAG) were complete and accurate when compared to data the PHPs submitted to HSAG.

HSAG utilized DHB's monthly encounter data extracts and requested the PHPs to submit the final encounters in their data submission for this study. To compare DHB's and the PHPs' submitted data, HSAG developed a comparable match key between the two data sources. Data elements used in developing the match key varied by PHP and encounter type but generally included the transaction control number (TCN) or internal control number (ICN) and claim line number data elements. HSAG concatenated these data elements to create a unique match key, which became the unique identifier for each encounter detail line in DHB's and each PHP's data.

Record Completeness

As described in the "Overview and Methodology" section, HSAG evaluated two aspects of record completeness: Encounter Data Record Omission and Record Surplus.

Encounter Data Record Omission and Record Surplus

Encounter record omission and surplus rates are summary metrics designed to evaluate discrepancies between two data sources—i.e., primary and secondary. The primary data source refers to data maintained by an organization (e.g., a PHP) responsible for sending data to another organization (e.g., DHB). The secondary data source refers to data acquired by the receiving organization. By comparing these two data sources (i.e., primary and secondary), the analysis yields the percentage of records contained in one source and not the other, and vice versa. Therefore, encounter record omission refers to the percentage of encounters reported in the primary data source but missing from the secondary data source. For this analysis, the omission rate identifies the percentage of encounters reported by a PHP that were missing from DHB's data. Similarly, the encounter record surplus rate refers to the percentage of encounters reported in the secondary data source (DHB) that were missing from the primary data source (the PHP).

Table 3-1 illustrates the percentage of records present in the PHP-submitted files that were not found in DHB's files (record omission) and the percentage of records present in DHB's files but not present in the PHP-submitted files (record surplus). **Lower rates indicate better performance for both record omission and record surplus.**

Table 3-1—Record Omission and Surplus Rates by PHP and Encounter Type

PHP	Professional Encounters		Institutional Encounters		Pharmacy Encounters	
	Omission *(Only Identified in PHP Data)*	Surplus *(Only Identified in DHB Data)*	Omission *(Only Identified in PHP Data)*	Surplus *(Only Identified in DHB Data)*	Omission *(Only Identified in PHP Data)*	Surplus *(Only Identified in DHB Data)*
AmeriHealth	7.6%	0.1%	17.4%	0.4%	1.4%	0.5%
Carolina Complete	0.3%	1.4%	2.6%	10.9%	2.1%	1.8%
Healthy Blue	1.7%	0.3%	1.4%	0.1%	1.0%	0.1%
UnitedHealthcare	2.2%	13.0%	0.6%	2.6%	2.3%	2.2%
WellCare	0.1%	1.3%	0.4%	10.6%	1.2%	1.3%
Statewide	**2.2%**	**4.0%**	**4.2%**	**4.7%**	**1.4%**	**0.9%**

Red text indicates rates greater than 5.0 percent.

Key Findings: Table 3-1

Professional Encounters:

- **Record Omission**: The statewide record omission rate among professional encounters was low at 2.2 percent, suggesting that nearly 98.0 percent of encounters in the PHP-submitted files were also in the DHB-submitted files.
  - **AmeriHealth** had a slightly high record omission rate at 7.6 percent. After investigation, HSAG found this to be related to claim lines submitted by **AmeriHealth** that were marked as paid, while DHB submitted them marked as denied. Since the study was restricted to paid claims, if lines marked as denied that were part of a claim marked as paid at the header level were included in the analysis, the record omission rate for **AmeriHealth** would drop to 0.1 percent.
- **Record Surplus**: The statewide record surplus rate among professional encounters was low at 4.0 percent, suggesting that 96.0 percent of encounters in the DHB-submitted files were identified in the PHP-submitted files.
  - **UnitedHealthcare** had a high record surplus rate at 13.0 percent. When stratifying the results based on claim status, over 98.0 percent of the claims found only in the DHB-submitted data were marked as void. Interestingly, nearly all of these voided records were also value-based payment records. Excluding the DHB surplus voided claims from the analysis would decrease **UnitedHealthcare**'s surplus rate to 0.2 percent. The combination of these factors indicate that voided claims contributed to the high surplus rate.

Institutional Encounters:

- **Record Omission**: The statewide record omission rate for institutional encounters was 4.2 percent, suggesting that almost 96.0 percent of records in the PHP-submitted files were also present in the

DHB-submitted data. Among all PHPs, **WellCare** had the lowest record omission rate (0.4 percent), whereas **AmeriHealth** had the highest (17.4 percent).

  - For **AmeriHealth**, 17.4 percent of records in the **AmeriHealth-**submitted data were not found in the DHB-submitted data. This was primarily because the claim lines that were submitted as paid in **AmeriHealth**'s data were marked as denied in DHB's data. If the denied claim lines from DHB's data were included in the analysis, **AmeriHealth**'s record omission rate would drop to 0.7 percent.

- **Record Surplus**: The statewide record surplus rate for institutional encounters was 4.7 percent, suggesting that more than 95.0 percent of records in the DHB-submitted data were also present in the PHP-submitted files. Excluding **Carolina Complete** and **WellCare**, all PHPs had a record surplus rate of 2.6 percent or less. Amongst all PHPs, **Healthy Blue** had the lowest record surplus rate (0.1 percent), while **Carolina Complete** had the highest rate (10.9 percent).
  - The record surplus rates for **Carolina Complete** and **WellCare** were high at 10.9 percent and 10.6 percent, respectively. For both PHPs, further investigation determined that 56.1 percent and 61.6 percent of surplus records were voided, respectively. If voided claims were excluded from the analysis, the record surplus rate would decrease to 5.1 percent for **Carolina Complete** and decrease to 4.4 percent for **WellCare**. This indicates that voided claims contributed to the high surplus rates for both PHPs.

Pharmacy Encounters:

- **Record Omission:** All record omission rates were below the 5.0 percent threshold and ranged from 1.0 percent (**Healthy Blue**) to 2.3 percent (**UnitedHealthcare**). This resulted in a 1.4 percent statewide record omission rate.
- **Record Surplus:** All record surplus rates were below the 5.0 percent threshold and ranged from 0.1 percent (**Healthy Blue**) to 2.2 percent (**UnitedHealthcare**). This resulted in a 0.9 percent statewide record surplus rate.

Data Element Completeness and Accuracy

As described in the "Overview and Methodology" section, HSAG evaluated three aspects of data element completeness and accuracy: Element Completeness, Element Accuracy, and All-Element Accuracy.

Element Completeness

HSAG based data element completeness measures on the number of records that matched in both DHB's submitted data and the PHPs' submitted data. HSAG evaluated element-level completeness based on element omission and element surplus rates. The element omission rate represents the percentage of records with values present in the PHPs' submitted data but not in DHB's submitted data. Similarly, the element surplus rate reports the percentage of records with values present in DHB's submitted data but not in the PHPs' submitted data. **For the element omission and surplus indicators,**

lower rates indicate better performance. However, for the element missing values and element present values indicators, lower or higher rates do not indicate better or worse performance. Encounter data element omission and surplus results, as well as percent missing and present indicators, for each encounter type are presented in Table 3-2, Table 3-4, and Table 3-7.

Table 3-2 displays the element completeness results for each key data element from the professional encounters.

Table 3-2—Data Element Completeness by PHP: Professional Encounters

PHP	Omission *(Only Populated in PHP Data)*	Surplus *(Only Populated in DHB Data)*	Missing *(Not Populated in Either)*	Present *(Populated in Both)*
Beneficiary ID				
AmeriHealth	0.0%	0.1%	0.0%	99.9%
Carolina Complete	0.0%	0.0%	0.0%	100%
Healthy Blue	0.0%	0.0%	0.0%	100%
UnitedHealthcare	0.0%	0.0%	0.0%	100%
WellCare	0.0%	0.0%	0.0%	100%
Statewide	**0.0%**	**<0.1%**	**0.0%**	**>99.9%**
Detail Service From Date				
AmeriHealth	0.0%	0.0%	0.0%	100%
Carolina Complete	0.0%	0.0%	0.0%	100%
Healthy Blue	0.0%	0.0%	0.0%	100%
UnitedHealthcare	0.0%	0.0%	0.0%	100%
WellCare	0.0%	0.0%	0.0%	100%
Statewide	**0.0%**	**0.0%**	**0.0%**	**100%**
Detail Service To Date				
AmeriHealth	0.0%	0.0%	0.0%	100%
Carolina Complete	0.0%	0.0%	0.0%	100%
Healthy Blue	0.0%	0.0%	0.0%	100%
UnitedHealthcare	0.0%	0.0%	0.0%	100%
WellCare	0.0%	0.0%	0.0%	100%
Statewide	**0.0%**	**0.0%**	**0.0%**	**100%**

PHP	Omission *(Only Populated in PHP Data)*	Surplus *(Only Populated in DHB Data)*	Missing *(Not Populated in Either)*	Present *(Populated in Both)*
Billing Provider NPI				
AmeriHealth	0.0%	0.0%	0.0%	100%
Carolina Complete	0.0%	<0.1%	0.0%	>99.9%
Healthy Blue	0.0%	0.1%	0.0%	99.9%
UnitedHealthcare	0.0%	0.1%	0.0%	99.9%
WellCare	0.0%	0.2%	0.0%	99.8%
Statewide	**0.0%**	**0.1%**	**0.0%**	**99.9%**
Rendering Provider NPI				
AmeriHealth	64.4%	0.0%	0.3%	35.3%
Carolina Complete	7.5%	0.0%	56.6%	35.9%
Healthy Blue	0.0%	<0.1%	62.3%	37.7%
UnitedHealthcare	1.7%	0.1%	71.7%	26.4%
WellCare	0.1%	<0.1%	69.5%	30.4%
Statewide	**10.8%**	**<0.1%**	**56.5%**	**32.7%**
Referring Provider NPI				
AmeriHealth	0.0%	<0.1%	82.2%	17.8%
Carolina Complete	5.1%	0.0%	83.0%	11.8%
Healthy Blue	0.0%	<0.1%	81.7%	18.3%
UnitedHealthcare	0.0%	<0.1%	86.6%	13.4%
WellCare	<0.1%	<0.1%	85.9%	14.1%
Statewide	**0.6%**	**<0.1%**	**84.1%**	**15.2%**
Rendering Provider Taxonomy Code				
AmeriHealth	64.4%	0.0%	0.0%	35.6%
Carolina Complete	7.6%	<0.1%	56.2%	36.2%
Healthy Blue	<0.1%	<0.1%	61.7%	38.3%
UnitedHealthcare	3.0%	0.1%	70.1%	26.7%

PHP	Omission *(Only Populated in PHP Data)*	Surplus *(Only Populated in DHB Data)*	Missing *(Not Populated in Either)*	Present *(Populated in Both)*
WellCare	0.1%	0.2%	69.3%	30.4%
Statewide	**11.1%**	**0.1%**	**55.8%**	**33.0%**
Primary Diagnosis Code				
AmeriHealth	0.0%	0.0%	0.0%	100%
Carolina Complete	0.0%	0.0%	0.0%	100%
Healthy Blue	0.0%	0.0%	0.0%	100%
UnitedHealthcare	0.0%	0.0%	0.0%	100%
WellCare	0.0%	0.0%	0.0%	100%
Statewide	**0.0%**	**0.0%**	**0.0%**	**100%**
Secondary Diagnosis Codes				
AmeriHealth	<0.1%	<0.1%	73.6%	26.4%
Carolina Complete	<0.1%	0.0%	73.3%	26.7%
Healthy Blue	<0.1%	0.0%	71.7%	28.3%
UnitedHealthcare	<0.1%	0.0%	80.1%	19.9%
WellCare	0.0%	0.0%	78.1%	21.9%
Statewide	**<0.1%**	**<0.1%**	**75.8%**	**24.2%**
CPT/HCPCS Code				
AmeriHealth	0.0%	0.0%	0.0%	100%
Carolina Complete	0.0%	0.4%	0.0%	99.6%
Healthy Blue	0.0%	0.0%	0.0%	100%
UnitedHealthcare	0.0%	0.0%	0.0%	100%
WellCare	0.0%	0.0%	0.0%	100%
Statewide	**0.0%**	**<0.1%**	**0.0%**	**>99.9%**
CPT/HCPCS Code Modifiers				
AmeriHealth	<0.1%	0.1%	23.2%	76.6%
Carolina Complete	<0.1%	<0.1%	24.4%	75.6%

PHP	Omission *(Only Populated in PHP Data)*	Surplus *(Only Populated in DHB Data)*	Missing *(Not Populated in Either)*	Present *(Populated in Both)*
Healthy Blue	0.0%	0.0%	26.8%	73.2%
UnitedHealthcare	<0.1%	<0.1%	17.2%	82.8%
WellCare	0.0%	0.0%	19.4%	80.6%
Statewide	**<0.1%**	**<0.1%**	**21.9%**	**78.1%**
Service Units				
AmeriHealth	0.0%	0.0%	0.0%	100%
Carolina Complete	0.0%	0.0%	0.0%	100%
Healthy Blue	0.0%	0.0%	0.0%	100%
UnitedHealthcare	0.0%	0.0%	0.0%	100%
WellCare	0.0%	0.0%	0.0%	100%
Statewide	**0.0%**	**0.0%**	**0.0%**	**100%**
Header Paid Amount				
AmeriHealth	0.0%	0.0%	0.0%	100%
Carolina Complete	0.0%	0.0%	0.0%	100%
Healthy Blue	0.0%	0.0%	0.0%	100%
UnitedHealthcare	0.0%	0.0%	0.0%	100%
WellCare	0.0%	0.0%	0.0%	100%
Statewide	**0.0%**	**0.0%**	**0.0%**	**100%**
Detail Paid Amount				
AmeriHealth	0.0%	0.0%	0.0%	100%
Carolina Complete	0.0%	0.0%	0.0%	100%
Healthy Blue	0.0%	0.0%	0.0%	100%
UnitedHealthcare	0.0%	0.0%	0.0%	100%
WellCare	0.0%	0.0%	0.0%	100%
Statewide	**0.0%**	**0.0%**	**0.0%**	**100%**

Red text indicates rates greater than 5.0 percent.

Key Findings: Table 3-2

- For all PHPs, the data element omission rates were generally <0.1 percent for nearly all evaluated data elements; however, **AmeriHealth**'s and **Carolina Complete**'s *Rendering Provider NPI* and *Rendering Provider Taxonomy Code*, as well as **Carolina Complete**'s *Referring Provider NPI,* were all above 5.0 percent.
  - ***Rendering Provider NPI:*** **AmeriHealth** exhibited a high element omission rate of 64.4 percent, and **Carolina Complete** had a slightly high element omission rate of 7.5 percent. Among the matched records with *Rendering Provider NPI* values not populated in the DHB-submitted data, 100 percent of the **AmeriHealth**-submitted data and more than 99.9 percent of the **Carolina Complete**-submitted data had the same values populated for both the *Rendering Provider NPI* and *Billing Provider NPI* data elements, as illustrated in Table 3-5.

Table 3-3—Illustration for Rendering Provider NPI Omission

PHP		DHB	
Rendering Provider NPI	Billing Provider NPI	Rendering Provider NPI	Billing Provider NPI
1234567890	1234567890	1234567890	

  - ***Referring Provider NPI:*** **Carolina Complete** had a slightly high omission rate of 5.1 percent. Greater than 99.0 percent of the matched records with *Referring Provider NPI* values not populated in the DHB-submitted data had the same values populated for *Rendering Provider NPI* and *Referring Provider NPI* in the **Carolina Complete**-submitted data.
  - ***Rendering Provider Taxonomy Code:*** **AmeriHealth** exhibited a high element omission rate of 64.4 percent, and **Carolina Complete** had a slightly high omission rate of 7.6 percent. For every occurrence where *Rendering Provider NPI* was missing in the DHB-submitted data, *Rendering Provider Taxonomy Code* was also missing.
- The data element surplus rates were consistently low for all evaluated data elements, at 0.4 percent or less.
- The data element missing rates were 0.0 percent for most data elements, and conversely, the data element present rates were at least 99.9 percent for most data elements. HSAG does not expect situational data elements, such as *Rendering Provider NPI, Referring Provider NPI, Rendering Provider Taxonomy Code, Secondary Diagnosis Codes*, and *CPT/HCPCS Code Modifiers*, to be populated for all encounter lines. This explains the higher element missing rates and lower element present rates for these data elements.

Table 3-4 displays the element completeness results for each key data element from the institutional encounters.

Table 3-4—Data Element Completeness by PHP: Institutional Encounters

PHP	Omission *(Only Populated in PHP Data)*	Surplus *(Only Populated in DHB Data)*	Missing *(Not Populated in Either)*	Present *(Populated in Both)*
Beneficiary ID				
AmeriHealth	0.0%	0.0%	0.0%	100%
Carolina Complete	0.0%	0.0%	0.0%	100%
Healthy Blue	0.0%	0.0%	0.0%	100%
UnitedHealthcare	0.0%	0.0%	0.0%	100%
WellCare	0.0%	0.0%	0.0%	100%
Statewide	**0.0%**	**0.0%**	**0.0%**	**100%**
Header Service From Date				
AmeriHealth	0.0%	0.0%	0.0%	100%
Carolina Complete	0.0%	0.0%	0.0%	100%
Healthy Blue	0.0%	0.0%	0.0%	100%
UnitedHealthcare	0.0%	0.0%	0.0%	100%
WellCare	0.0%	0.0%	0.0%	100%
Statewide	**0.0%**	**0.0%**	**0.0%**	**100%**
Header Service To Date				
AmeriHealth	0.0%	0.0%	0.0%	100%
Carolina Complete	0.0%	0.0%	0.0%	100%
Healthy Blue	0.0%	0.0%	0.0%	100%
UnitedHealthcare	0.0%	0.0%	0.0%	100%
WellCare	0.0%	0.0%	0.0%	100%
Statewide	**0.0%**	**0.0%**	**0.0%**	**100%**
Detail Service From Date				
AmeriHealth	0.0%	0.0%	0.0%	100%
Carolina Complete	0.0%	0.0%	0.0%	100%
Healthy Blue	0.0%	0.0%	0.0%	100%
UnitedHealthcare	15.3%	0.0%	0.0%	84.7%
WellCare	0.0%	0.0%	0.0%	100%
Statewide	**3.3%**	**0.0%**	**0.0%**	**96.7%**

PHP	Omission *(Only Populated in PHP Data)*	Surplus *(Only Populated in DHB Data)*	Missing *(Not Populated in Either)*	Present *(Populated in Both)*
Detail Service To Date				
AmeriHealth	0.0%	0.0%	0.0%	100%
Carolina Complete	0.0%	0.0%	0.0%	100%
Healthy Blue	0.0%	0.0%	0.0%	100%
UnitedHealthcare	15.3%	0.0%	0.0%	84.7%
WellCare	0.0%	0.0%	0.0%	100%
Statewide	**3.3%**	**0.0%**	**0.0%**	**96.7%**
Billing Provider NPI				
AmeriHealth	0.0%	0.0%	0.0%	100%
Carolina Complete	0.0%	0.0%	0.0%	100%
Healthy Blue	0.0%	0.0%	0.0%	100%
UnitedHealthcare	0.0%	0.0%	0.0%	100%
WellCare	0.0%	0.0%	0.0%	100%
Statewide	**0.0%**	**0.0%**	**0.0%**	**100%**
Attending Provider NPI				
AmeriHealth	0.0%	0.0%	<0.1%	>99.9%
Carolina Complete	<0.1%	0.0%	0.0%	>99.9%
Healthy Blue	0.0%	0.0%	0.1%	99.9%
UnitedHealthcare	<0.1%	0.0%	<0.1%	>99.9%
WellCare	0.0%	0.0%	<0.1%	>99.9%
Statewide	**<0.1%**	**0.0%**	**<0.1%**	**>99.9%**
Referring Provider NPI				
AmeriHealth	<0.1%	0.0%	96.2%	3.8%
Carolina Complete	0.1%	0.0%	96.9%	3.0%
Healthy Blue	0.0%	0.0%	96.2%	3.8%
UnitedHealthcare	0.1%	0.0%	96.5%	3.4%
WellCare	0.0%	0.0%	97.2%	2.8%
Statewide	**<0.1%**	**0.0%**	**96.6%**	**3.4%**

PHP	Omission *(Only Populated in PHP Data)*	Surplus *(Only Populated in DHB Data)*	Missing *(Not Populated in Either)*	Present *(Populated in Both)*
Primary Diagnosis Code				
AmeriHealth	0.0%	0.0%	0.0%	100%
Carolina Complete	0.0%	0.0%	0.0%	100%
Healthy Blue	0.0%	0.0%	0.0%	100%
UnitedHealthcare	0.0%	0.0%	0.0%	100%
WellCare	0.0%	0.0%	0.0%	100%
Statewide	**0.0%**	**0.0%**	**0.0%**	**100%**
Secondary Diagnosis Codes				
AmeriHealth	0.0%	0.0%	19.0%	81.0%
Carolina Complete	0.0%	0.0%	16.8%	83.2%
Healthy Blue	0.0%	0.0%	19.4%	80.6%
UnitedHealthcare	0.0%	0.0%	16.7%	83.3%
WellCare	17.1%	0.0%	0.3%	82.6%
Statewide	**3.8%**	**0.0%**	**14.1%**	**82.0%**
Admission Diagnosis Code				
AmeriHealth	0.0%	0.0%	98.5%	1.5%
Carolina Complete	<0.1%	0.0%	85.9%	14.1%
Healthy Blue	0.0%	0.0%	98.7%	1.3%
UnitedHealthcare	0.2%	<0.1%	84.5%	15.3%
WellCare	0.0%	<0.1%	86.8%	13.2%
Statewide	**<0.1%**	**<0.1%**	**91.3%**	**8.7%**
CPT/HCPCS Code				
AmeriHealth	<0.1%	<0.1%	4.6%	95.4%
Carolina Complete	0.0%	<0.1%	16.4%	83.6%
Healthy Blue	<0.1%	<0.1%	4.5%	95.5%
UnitedHealthcare	0.0%	<0.1%	18.0%	82.0%
WellCare	0.0%	0.0%	15.9%	84.1%
Statewide	**<0.1%**	**<0.1%**	**11.5%**	**88.5%**

PHP	Omission *(Only Populated in PHP Data)*	Surplus *(Only Populated in DHB Data)*	Missing *(Not Populated in Either)*	Present *(Populated in Both)*
CPT/HCPCS Code Modifiers				
AmeriHealth	<0.1%	<0.1%	75.2%	24.8%
Carolina Complete	<0.1%	0.0%	80.4%	19.6%
Healthy Blue	<0.1%	<0.1%	75.0%	25.0%
UnitedHealthcare	0.0%	<0.1%	78.7%	21.3%
WellCare	0.0%	0.0%	77.0%	23.0%
Statewide	**<0.1%**	**<0.1%**	**77.0%**	**23.0%**
Service Units				
AmeriHealth	0.0%	0.0%	0.0%	100%
Carolina Complete	0.0%	0.0%	0.0%	100%
Healthy Blue	0.0%	0.0%	0.0%	100%
UnitedHealthcare	0.0%	0.0%	0.0%	100%
WellCare	0.0%	0.0%	0.0%	100%
Statewide	**0.0%**	**0.0%**	**0.0%**	**100%**
Surgical Procedure Codes				
AmeriHealth	0.0%	0.0%	99.1%	0.9%
Carolina Complete	0.0%	0.0%	89.8%	10.2%
Healthy Blue	0.0%	0.0%	99.1%	0.9%
UnitedHealthcare	0.0%	0.0%	88.6%	11.4%
WellCare	0.0%	0.0%	90.4%	9.6%
Statewide	**0.0%**	**0.0%**	**93.7%**	**6.3%**
Revenue Code				
AmeriHealth	0.0%	0.0%	0.0%	100%
Carolina Complete	0.0%	0.0%	0.0%	100%
Healthy Blue	0.0%	0.0%	0.0%	100%
UnitedHealthcare	0.0%	0.0%	0.0%	100%
WellCare	0.0%	0.0%	0.0%	100%
Statewide	**0.0%**	**0.0%**	**0.0%**	**100%**

PHP	Omission *(Only Populated in PHP Data)*	Surplus *(Only Populated in DHB Data)*	Missing *(Not Populated in Either)*	Present *(Populated in Both)*
DRG				
AmeriHealth	0.0%	<0.1%	98.6%	1.4%
Carolina Complete	<0.1%	4.0%	85.9%	10.0%
Healthy Blue	0.0%	<0.1%	98.7%	1.3%
UnitedHealthcare	0.0%	0.0%	85.3%	14.7%
WellCare	0.0%	0.0%	86.9%	13.1%
Statewide	**<0.1%**	**0.5%**	**91.5%**	**8.0%**
Type of Bill Code				
AmeriHealth	0.0%	0.0%	0.0%	100%
Carolina Complete	0.0%	0.0%	0.0%	100%
Healthy Blue	0.0%	0.0%	0.0%	100%
UnitedHealthcare	0.0%	0.0%	0.0%	100%
WellCare	0.0%	0.0%	0.0%	100%
Statewide	**0.0%**	**0.0%**	**0.0%**	**100%**
Header Paid Amount				
AmeriHealth	0.0%	0.0%	0.0%	100%
Carolina Complete	0.0%	0.0%	0.0%	100%
Healthy Blue	0.0%	0.0%	0.0%	100%
UnitedHealthcare	0.0%	0.0%	0.0%	100%
WellCare	0.0%	0.0%	0.0%	100%
Statewide	**0.0%**	**0.0%**	**0.0%**	**100%**
Detail Paid Amount				
AmeriHealth	0.0%	0.0%	0.0%	100%
Carolina Complete	0.0%	0.0%	0.0%	100%
Healthy Blue	0.0%	0.0%	0.0%	100%
UnitedHealthcare	0.0%	0.0%	0.0%	100%
WellCare	0.0%	0.0%	0.0%	100%
Statewide	**0.0%**	**0.0%**	**0.0%**	**100%**

Red text indicates rates greater than 5.0 percent.

Key Findings: Table 3-4

- For institutional encounters, the element omission rates were less than or equal to 0.2 percent, except for *Detail Service From Date* and *Detail Service To Date* for **UnitedHealthcare**, and *Secondary Diagnosis Codes* for **WellCare**. Additionally, the element surplus rates were less than or equal to 4.0 percent for all PHPs.
  - ***Detail Service From Date*** and ***Detail Service To Date*****: UnitedHealthcare** had an element omission rate of 15.3 percent for both the *Detail Service From Date* and *Detail Service To Date* data elements. For more than 99.0 percent of these records, the **UnitedHealthcare**-submitted data had the same values for *Detail Service From Date* and *Header Service From Date* and for *Detail Service To Date* and *Header Service To Date*, as illustrated in Table 3-5.

Table 3-5—Illustration for Detail Service From Date and Detail Service To Date Omission

UnitedHealthcare				DHB			
Header Service From Date	Header Service To Date	Detail Service From Date	Detail Service To Date	Header Service From Date	Header Service To Date	Detail Service From Date	Detail Service To Date
7/7/2022	7/14/2022	7/7/2022	7/14/2022	7/7/2022	7/14/2022		

  - ***Secondary Diagnosis Codes*****: WellCare** had a data element omission rate of 17.1 percent for the *Secondary Diagnosis Codes* data element. Further investigation determined that for more than 76.0 percent of these records, the **WellCare**-submitted data had the same values populated for the *Primary Diagnosis Code* and the *Secondary Diagnosis Codes* data elements, as illustrated in Table 3-6.

Table 3-6—Illustration for WellCare Secondary Diagnosis Codes Omission

WellCare		DHB	
Primary Diagnosis Codes	Secondary Diagnosis Codes	Primary Diagnosis Codes	Secondary Diagnosis Codes
M797	M797	M797	

- The data element missing rates were less than or equal to 0.1 percent for most data elements, and conversely, the data element present rates were at least 99.9 percent for most data elements. HSAG does not expect situational data elements, such as *DRG*, *Referring Provider NPI*, *Secondary Diagnosis Codes*, *Admission Diagnosis Code*, *CPT/HCPCS Code, CPT/HCPCS Code Modifiers*, and *Surgical Procedure Codes* to be populated for all encounter lines. This explains the higher element missing rates and lower element present rates for these data elements.
  - Of note, **UnitedHealthcare** had lower than expected percent present rates for the *Detail Service From Date* and *Detail Service To Date* data elements since it had higher element omission rates. Since these data elements were missing from the DHB-submitted data when populated in the **UnitedHealthcare**-submitted data in 15.3 percent of matched records, the percent present rates were 84.7 percent.

Table 3-7 displays the element completeness results for each key data element from the pharmacy encounters.

Table 3-7—Data Element Completeness by PHP: Pharmacy Encounters

PHP	Omission *(Only Populated in PHP Data)*	Surplus *(Only Populated in DHB Data)*	Missing *(Not Populated in Either)*	Present *(Populated in Both)*
Beneficiary ID				
AmeriHealth	0.0%	0.0%	0.0%	100%
Carolina Complete	0.0%	0.0%	0.0%	100%
Healthy Blue	0.0%	0.0%	0.0%	100%
UnitedHealthcare	0.0%	0.0%	0.0%	100%
WellCare	0.0%	0.0%	0.0%	100%
Statewide	**0.0%**	**0.0%**	**0.0%**	**100%**
Date of Service				
AmeriHealth	0.0%	0.0%	0.0%	100%
Carolina Complete	0.0%	0.0%	0.0%	100%
Healthy Blue	0.0%	0.0%	0.0%	100%
UnitedHealthcare	0.0%	0.0%	0.0%	100%
WellCare	0.0%	0.0%	0.0%	100%
Statewide	**0.0%**	**0.0%**	**0.0%**	**100%**
Billing Provider NPI				
AmeriHealth	0.0%	0.0%	0.0%	100%
Carolina Complete	0.0%	0.0%	0.0%	100%
Healthy Blue	0.0%	0.0%	0.0%	100%
UnitedHealthcare	0.0%	0.0%	0.0%	100%
WellCare	0.0%	0.0%	0.0%	100%
Statewide	**0.0%**	**0.0%**	**0.0%**	**100%**
Prescribing Provider NPI				
AmeriHealth	0.0%	0.0%	0.0%	100%
Carolina Complete	0.0%	<0.1%	0.0%	>99.9%
Healthy Blue	0.0%	<0.1%	0.0%	>99.9%
UnitedHealthcare	0.0%	0.0%	0.0%	100%

PHP	Omission *(Only Populated in PHP Data)*	Surplus *(Only Populated in DHB Data)*	Missing *(Not Populated in Either)*	Present *(Populated in Both)*
WellCare	0.0%	<0.1%	0.0%	>99.9%
Statewide	**0.0%**	**<0.1%**	**0.0%**	**>99.9%**
NDC				
AmeriHealth	0.0%	0.0%	0.0%	100%
Carolina Complete	0.0%	0.0%	0.0%	100%
Healthy Blue	0.0%	0.0%	0.0%	100%
UnitedHealthcare	0.0%	0.0%	0.0%	100%
WellCare	0.0%	0.0%	0.0%	100%
Statewide	**0.0%**	**0.0%**	**0.0%**	**100%**
Days Supply				
AmeriHealth	0.0%	0.0%	0.0%	100%
Carolina Complete	0.0%	0.0%	0.0%	100%
Healthy Blue	0.0%	0.0%	0.0%	100%
UnitedHealthcare	0.0%	0.0%	0.0%	100%
WellCare	0.0%	0.0%	0.0%	100%
Statewide	**0.0%**	**0.0%**	**0.0%**	**100%**
Paid Amount				
AmeriHealth	0.0%	0.0%	0.0%	100%
Carolina Complete	0.0%	0.0%	0.0%	100%
Healthy Blue	0.0%	0.0%	0.0%	100%
UnitedHealthcare	0.0%	0.0%	0.0%	100%
WellCare	0.0%	0.0%	0.0%	100%
Statewide	**0.0%**	**0.0%**	**0.0%**	**100%**

Key Findings: Table 3-7

- For matched records between DHB's data and the PHP-submitted data, all data elements had element omission and element surplus rates of <0.1 percent.
- For matched records between DHB's data and the PHP-submitted data, all data elements had element missing rates at 0.0 percent.

- For matched records between DHB's data and the PHP-submitted data, all data elements were populated in both data sources more than 99.9 percent of the time.

Element Accuracy

Data element accuracy is limited to those records that have values present in both data sources. HSAG does not include records in the numerator of the data element present indicator or denominator of data element accuracy if values are missing in at least one data source. The numerator of data element accuracy is the number of records with the same non-missing values for a given data element. Higher data element accuracy rates indicate that the values populated for a data element in DHB's submitted encounter data and PHPs' submitted encounter data are the same and thus more accurate. Therefore, **for the accuracy indicator, a higher rate indicates better performance**. Encounter data element accuracy results for each encounter type are presented in Table 3-8, Table 3-9, and Table 3-11.

Table 3-8 displays the percentage of those records that contained the same values in data sources (accuracy indicator) for professional encounter key data elements.

Table 3-8—Data Element Accuracy by PHP: Professional Encounters

Key Data Element	Ameri-Health	Carolina Complete	Healthy Blue	United-Healthcare	WellCare	Statewide
Beneficiary ID	>99.9%	>99.9%	>99.9%	>99.9%	100%	**>99.9%**
Detail Service From Date	>99.9%	>99.9%	100%	100%	>99.9%	**>99.9%**
Detail Service To Date	>99.9%	>99.9%	100%	100%	>99.9%	**>99.9%**
Billing Provider NPI	99.9%	>99.9%	100%	>99.9%	>99.9%	**>99.9%**
Rendering Provider NPI	100%	>99.9%	99.9%	99.9%	99.9%	**99.9%**
Referring Provider NPI	100%	>99.9%	>99.9%	99.9%	99.9%	**>99.9%**
Rendering Provider Taxonomy Code	>99.9%	>99.9%	>99.9%	>99.9%	99.9%	**>99.9%**
Primary Diagnosis Code	>99.9%	>99.9%	100%	100%	100%	**>99.9%**
Secondary Diagnosis Codes	98.7%	98.8%	98.7%	98.7%	98.6%	**98.7%**
CPT/HCPCS Code	99.8%	>99.9%	>99.9%	99.9%	>99.9%	**99.9%**
CPT/HCPCS Code Modifiers	99.9%	>99.9%	100%	99.9%	99.9%	**99.9%**
Service Units	99.8%	99.5%	98.4%	96.8%	99.6%	**98.6%**
Header Paid Amount	91.5%	99.7%	98.4%	96.6%	99.6%	**97.4%**
Detail Paid Amount	91.5%	99.9%	98.4%	96.6%	99.7%	**97.5%**

Red text indicates rates lower than 95.0 percent.

Key Findings: Table 3-8

- For records that matched between the two data sources and with data element values populated in both sources, the majority of evaluated key data elements showed high accuracy rates of at least 96.6 percent for all PHPs, with most accuracy rates more than 98.7 percent. However, **AmeriHealth** had lower accuracy rates for the *Header Paid Amount* and *Detail Paid Amount* data elements (91.5 percent each).
  - ***Header Paid Amount*** and ***Detail Paid Amount:*** Nearly 98.0 percent of the records that did not have matching values for *Header Paid Amount* and *Detail Paid Amount* were value-based payment claims. For over 90.0 percent of records that contained different paid amount values, **AmeriHealth** submitted a *Header Paid Amount* of $2.50 and a *Detail Paid Amount* of $5.00, while DHB submitted values of $11.01 and $13.11, respectively. For 100 percent of the records with mismatching values, the DHB-submitted payment amounts were higher than the **AmeriHealth**-submitted payment amounts.

Table 3-9 displays the percentage of those records that contained the same values in data sources (accuracy indicator) for institutional encounter key data elements.

Table 3-9—Data Element Accuracy by PHP: Institutional Encounters

Key Data Element	Ameri-Health	Carolina Complete	Healthy Blue	United-Healthcare	WellCare	Statewide
Beneficiary ID	>99.9%	>99.9%	100%	>99.9%	100%	**>99.9%**
Header Service From Date	>99.9%	100%	>99.9%	100%	99.9%	**>99.9%**
Header Service To Date	100%	100%	>99.9%	100%	86.1%	**96.9%**
Detail Service From Date	>99.9%	100%	>99.9%	>99.9%	100%	**>99.9%**
Detail Service To Date	>99.9%	100%	>99.9%	>99.9%	100%	**>99.9%**
Billing Provider NPI	100%	100%	100%	100%	100%	**100%**
Attending Provider NPI	100%	100%	100%	100%	100%	**100%**
Referring Provider NPI	100%	100%	100%	100%	>99.9%	**>99.9%**
Primary Diagnosis Code	>99.9%	100%	>99.9%	100%	100%	**>99.9%**
Secondary Diagnosis Codes	>99.9%	99.9%	>99.9%	99.9%	16.1%	**81.1%**
Admission Diagnosis Code	100%	100%	100%	100%	95.8%	**98.6%**
CPT/HCPCS Code	>99.9%	100%	>99.9%	>99.9%	100%	**>99.9%**
CPT/HCPCS Code Modifiers	99.9%	100%	>99.9%	>99.9%	99.8%	**99.9%**
Service Units	99.0%	98.2%	>99.9%	83.8%	99.3%	**96.0%**
Surgical Procedure Codes	86.4%	89.8%	90.5%	92.1%	93.0%	**91.7%**
Revenue Code	>99.9%	100%	>99.9%	>99.9%	100%	**>99.9%**

Key Data Element	Ameri-Health	Carolina Complete	Healthy Blue	United-Healthcare	WellCare	Statewide
DRG	100%	100%	>99.9%	100%	100%	**>99.9%**
Type of Bill Code	92.5%	84.1%	99.9%	79.6%	100%	**92.3%**
Header Paid Amount	98.9%	99.6%	99.9%	98.7%	99.3%	**99.3%**
Detail Paid Amount	98.9%	99.9%	>99.9%	99.0%	99.5%	**99.5%**

Red text indicates rates lower than 95.0 percent.

Key Findings: Table 3-9

- For the matched records, all PHPs had element accuracy rates of more than 95.0 percent for all key data elements, except for the *Header Service To Date*, *Secondary Diagnosis Codes*, *Service Units*, *Surgical Procedure Codes*, and *Type of Bill Code* data elements.
  - ***Header Service To Date*:** All PHPs had more than a >99.9 percent accuracy rate for *Header Service To Date,* except for **WellCare**, which had an accuracy rate of 86.1 percent. For the matched records when **WellCare** had mismatching values, 97.6 percent of the **WellCare**-submitted data had the same values populated for the *Header Service From Date* and the *Header Service To Date,* whereas the DHB-submitted data had different values, as illustrated in Table 3-10.

Table 3-10—Illustration for WellCare Header Service To Date Accuracy

WellCare		DHB	
Header Service From Date	Header Service To Date	Header Service From Date	Header Service To Date
7/1/2022	7/1/2022	7/1/2022	7/3/2022

  - ***Secondary Diagnosis Codes*:** All PHPs had at least a 99.9 percent accuracy rate for *Secondary Diagnosis Code*s, except for **WellCare**, which had an accuracy rate of 16.1 percent. For the matched records when **WellCare** had mismatching values, the **WellCare**-submitted data had more *Secondary Diagnosis Codes* than the DHB-submitted data in 99.2 percent of records.
  - ***Service Units*:** For the *Service Units* data element, all PHPs had at least a 98.2 percent data element accuracy rate, except for **UnitedHealthcare**, which had an accuracy rate of 83.8 percent. For the matched records when the values differed between the **UnitedHealthcare**-submitted and DHB-submitted data, 92.2 percent of the **UnitedHealthcare**-submitted data had a zero value while the DHB-submitted data contained non-zero values.
  - ***Surgical Procedure Codes*:** All PHPs had less than a 95.0 percent data element accuracy rate for *Surgical Procedure Codes*. **WellCare** had the highest accuracy rate at 93.0 percent, and **AmeriHealth** had the lowest accuracy rate at 86.4 percent. For all the records that had mismatching values between the PHP-submitted and DHB-submitted data, the PHP-submitted data always had a greater number of surgical procedure codes compared to the DHB-submitted data.
  - ***Type of Bill Code*:** Except for **Healthy Blue** and **WellCare**, all PHPs had less than a 95.0 percent accuracy rate for the *Type of Bill Code,* with **UnitedHealthcare** having the lowest

accuracy rate at 79.6 percent. For the PHPs that had lower accuracy rates, more than 99.9 percent of the records varied in the third digit of the *Type of Bill Code* value. This digit specifies the frequency of billing (e.g., "131" [Hospital; outpatient; Admit thru discharge claim] versus "137" [Hospital; outpatient; Replacement of prior claim]).

Table 3-11 displays the percentage of those records that contained the same values in data sources (accuracy indicator) for pharmacy encounter key data elements.

Table 3-11—Data Element Accuracy by PHP: Pharmacy Encounters

Key Data Element	Ameri-Health	Carolina Complete	Healthy Blue	United-Healthcare	WellCare	Statewide
Beneficiary ID	>99.9%*	>99.9%	>99.9%	100%	100%	**>99.9%**
Date of Service	100%	100%	100%	100%	100%	**100%**
Billing Provider NPI	100%	99.9%	>99.9%	100%	>99.9%	**>99.9%**
Prescribing Provider NPI	>99.9%	>99.9%	>99.9%	100%	>99.9%	**>99.9%**
NDC	99.8%	99.8%	99.8%	99.9%	99.8%	**99.8%**
Days Supply	86.8%	66.3%	47.8%	70.0%	69.5%	**62.7%**
Paid Amount	87.2%	100%	100%	70.0%	100%	**93.1%**

Red text indicates rates lower than 95.0 percent.
* The Beneficiary ID for AmeriHealth was modified in DHB's data to remove the last digit. Doing so increased the accuracy rate from 0 percent to >99.9 percent.

Key Findings: Table 3-11

- For matched records between DHB's data and the PHP-submitted data, the *Days Supply* and the *Paid Amount* data elements had accuracy rates less than 95.0 percent, while all other data elements had accuracy rates greater than 95.0 percent across all PHPs.
  - ***Days Supply*:** For the *Days Supply* data element, all PHPs had accuracy rates less than 95.0 percent. In all discrepant records, the DHB-submitted data contained a negative value where the PHP-submitted data contained the same number as a positive value. For example, the *Days Supply* value in DHB's data was negative 30 (i.e., -30), whereas the *Days Supply* value in the PHPs' data was 30. All records with this discrepancy were marked as void.

  - ***Paid Amount*:** For the *Paid Amount* data element, **AmeriHealth** and **UnitedHealthcare** both had accuracy rates less than 95.0 percent. For all **AmeriHealth** discrepant records and 99.7 percent of **UnitedHealthcare** discrepant records, the DHB-submitted data contained a negative value where the PHP-submitted data contained the same number as a positive value. For example, the *Paid Amount* in DHB's data was negative $15.20 (i.e., -$15.20), whereas the *Paid Amount* in the PHPs' data was $15.20. For both PHPs, these records were marked as void.

All-Element Accuracy

All-element accuracy rates are calculated for records present in both data sources with the same values (missing or non-missing) for **all** key data elements relevant to each encounter type. The denominator for the all-element accuracy rate is defined differently from the denominator for the element accuracy rate since it includes data elements, even if values were missing in one or both data sources. If any of the data elements were counted toward element omission, element surplus, or an inaccurate value match, then the record would not be included in the all-element accuracy numerator. The all-element accuracy rate results are not derived from the accuracy rate of each data element. Therefore, **higher rates indicate better performance.** The all-element accuracy results for each encounter type are presented in Table 3-12.

Table 3-12—All-Element Accuracy by PHP and Encounter Type

PHP	Professional Encounters	Institutional Encounters	Pharmacy Encounters
AmeriHealth	35.1%	92.3%	86.6%
Carolina Complete	86.2%	78.9%	66.1%
Healthy Blue	97.9%	99.8%	47.7%
UnitedHealthcare	93.1%	65.3%	69.9%
WellCare	98.6%	1.1%	69.3%
Statewide	**86.3%**	**66.4%**	**62.6%**

Key Findings: Table 3-12

Professional Encounters:

- **AmeriHealth**, **Carolina Complete**, and **UnitedHealthcare** all exhibited an all-element accuracy rate below 95.0 percent. **AmeriHealth** had the lowest all-element accuracy rate at 35.1 percent, and **WellCare** had the highest at 98.6 percent. The combination of these factors resulted in a statewide rate of 86.3 percent.
  - **AmeriHealth**'s low all-element accuracy rate of 35.1 percent could be attributed to the high element omission rate of 64.4 percent for both the *Rendering Provider NPI* and *Rendering Provider Taxonomy Code* data elements, along with the moderately low element accuracy rate of 91.5 percent for both the *Header Paid Amount* and *Detail Paid Amount* data elements.
  - **Carolina Complete**'s low all-element accuracy rate of 86.2 percent was directly impacted by the moderately high element omission rates for *Rendering Provider NPI* (7.5 percent), *Referring Provider NPI* (5.1 percent), and *Rendering Provider Taxonomy Code* (7.6 percent).
  - For **UnitedHealthcare**, minor discrepancies collectively contributed to the moderately low all-element accuracy rate of 93.1 percent. These discrepancies include the element omission rate for *Rendering Provider Taxonomy Code* (3.0 percent) and the element accuracy rates for *Service Units*, *Header Paid Amount,* and *Detail Paid Amount* all being below 97.0 percent.

Institutional Encounters:

- Except for **Healthy Blue**, all PHPs' all-element accuracy rates were below 95.0 percent. While **WellCare** had the lowest all-element accuracy rate at 1.1 percent, **Healthy Blue** had the highest all-element accuracy rate at 99.8 percent. The combination of these factors resulted in a statewide rate of 66.4 percent.
  - The all-element accuracy rate for **AmeriHealth** was 92.3 percent, which could be attributed to the moderately low data element accuracy rates for *Surgical Procedure Codes* (86.4 percent) and *Type of Bill Code* (92.5 percent).
  - The low 78.9 percent all-element accuracy rate for **Carolina Complete** could be ascribed to low data element accuracy rates for *Surgical Procedure Codes* (89.8 percent) and *Type of Bill Code* (84.1 percent).
  - **UnitedHealthcare** had a low all-element accuracy rate of 65.3 percent, which could be attributed to high element omission rates for *Detail Service To Date* and *Detail Service From Date* (both 15.3 percent), as well as low data element accuracy rates for *Service Units* (83.8 percent), *Surgical Procedure Codes* (92.1 percent), and *Type of Bill Code* (79.6 percent).
  - **WellCare** had the lowest all-element accuracy rate at 1.1 percent, which could be attributed to the high element omission rate for *Secondary Diagnosis Codes* (17.1 percent) and the low element accuracy rates for *Header Service To Date* (86.1 percent), *Secondary Diagnosis Codes* (16.1 percent), and *Surgical Procedure Codes* (93.0 percent). Since there was little overlap in the records that contributed to each of these discrepancies, the combination of all findings directly caused the low all-element accuracy rate.

Pharmacy Encounters:

- All-element accuracy rates ranged from 47.7 percent (**Healthy Blue**) to 86.6 percent (**AmeriHealth**), which resulted in a 62.6 percent statewide rate. For all PHPs, results could be directly attributed to the *Days Supply* accuracy rate, which similarly ranged from 47.8 percent (**Healthy Blue**) to 86.8 percent (**AmeriHealth**) and resulted in a 62.7 percent statewide rate. Additionally, the low element accuracy rate for the *Paid Amount* data element for **AmeriHealth** (87.2 percent) and **UnitedHealthcare** (70.0 percent) also contributed to the low all-element accuracy rate for these PHPs.

Overall Encounter Accuracy

HSAG assessed overall encounter accuracy based on the unique claim number of the encounter, evaluating the encounter contents across all claim lines, regardless of line number. This analysis compared each PHP's data file to the respective DHB data file and vice versa (e.g., **AmeriHealth**'s professional encounters were compared to DHB's professional encounters and DHB's professional encounters were compared to **AmeriHealth**'s professional encounters). When the two data files were compared to each other, one data file was treated as the primary file and the other data file was treated as the secondary file. Using this method, HSAG took a multi-faceted approach to determine the percentage

of claim numbers identified in the primary file that were not identified in the secondary file, were partially identified in the secondary file, or completely matched the secondary file.

First, HSAG identified the number of unique claim numbers in the primary file. If a claim number could not be identified in the secondary file, the claim number was considered a **No Match.** For the claim numbers identified in the secondary file, HSAG further assessed whether all key data elements contained in the primary file, regardless of claim line number, could be identified in the secondary file. If all detail lines and all key data elements associated with the claim number in the primary file were identified in the secondary file, the claim number was considered a **Match**. However, if the secondary file had a different number of detail lines than the primary file, or if one or more of the detail lines had data elements that could not be identified in the secondary file, the claim number was considered a **Partial Match**.

Since the analysis was repeated by swapping the primary and secondary data files, claim numbers could be identified as a match in one analysis and a partial match in the reversed analysis. For example, if a claim number from the primary file contained three detail lines and the secondary file for that same claim number only contained two detail lines with matching key data elements, then the claim number would be reported as a partial match for the primary file since not all detail lines and key data elements could be identified in the secondary file. However, when reversing the analysis, the claim number would be considered a match if all the information contained in the two detail lines could be identified in the other data file. Therefore, all results displayed are based on the number of claims in the primary file, and **a higher match rate indicates better performance**. Table 3-13 displays the overall encounter accuracy rates by PHP and encounter type.

Table 3-13—Overall Encounter Accuracy by PHP and Encounter Type

PHP	DHB to PHP			PHP to DHB		
	Match	Partial Match	No Match	Match	Partial Match	No Match
Professional Encounters						
AmeriHealth	26.4%	73.5%	0.1%	22.7%	77.3%	0.1%
Carolina Complete	90.7%	8.6%	0.6%	91.2%	8.6%	0.2%
Healthy Blue	98.3%	1.4%	0.3%	97.5%	1.4%	1.1%
UnitedHealthcare	80.1%	5.4%	14.6%	91.4%	6.1%	2.4%
WellCare	98.0%	1.1%	1.0%	98.9%	1.1%	<0.1%
Statewide	**82.2%**	**13.3%**	**4.4%**	**84.7%**	**14.4%**	**0.9%**
Institutional Encounters						
AmeriHealth	93.1%	6.7%	0.3%	74.8%	24.6%	0.6%
Carolina Complete	77.2%	16.9%	5.9%	81.3%	17.6%	1.1%

PHP	DHB to PHP			PHP to DHB		
	Match	Partial Match	No Match	Match	Partial Match	No Match
Healthy Blue	99.4%	0.5%	0.1%	98.4%	0.5%	1.1%
UnitedHealthcare	70.1%	27.5%	2.4%	71.5%	28.1%	0.4%
WellCare	1.0%	93.1%	6.0%	1.0%	98.8%	0.2%
Statewide	**67.7%**	**29.7%**	**2.7%**	**65.9%**	**33.4%**	**0.7%**
Pharmacy Encounters						
AmeriHealth	86.2%	13.3%	0.5%	85.4%	13.2%	1.4%
Carolina Complete	64.9%	33.2%	1.8%	64.8%	33.2%	2.1%
Healthy Blue	47.7%	52.2%	0.1%	47.3%	51.8%	1.0%
UnitedHealthcare	68.4%	29.5%	2.2%	68.3%	29.4%	2.3%
WellCare	68.4%	30.3%	1.3%	68.4%	30.3%	1.2%
Statewide	**62.0%**	**37.1%**	**0.9%**	**61.7%**	**36.9%**	**1.4%**

Key Findings: Table 3-13

Professional Encounters:

- When comparing the DHB-submitted data to the PHP-submitted data and vice versa, the sum of the match and partial match rates was greater than 97.5 percent for all PHPs, except for **UnitedHealthcare**.
- **Healthy Blue** and **WellCare** had the highest match rates (around 98.0 percent), followed by **Carolina Complete** (approximately 91.0 percent), indicating that most records were found in both data sources and contained the same values.
- **AmeriHealth** had the lowest match rates, at or less than 26.4 percent, and the highest partial match rates, which were at least 73.5 percent. This shows that between the **AmeriHealth**-submitted and DHB-submitted data, the **AmeriHealth**-submitted data did not contain all record lines as the DHB-submitted data, and vice versa. Additionally, this also indicates that for the lines that did match, the rate was negatively affected by high element omission or surplus rates, and low element accuracy rates.
- When comparing the DHB-submitted data to the PHP-submitted data, **UnitedHealthcare**'s low match rate of 80.1 percent and high no match rate of 14.6 percent could be directly attributed to the **UnitedHealthcare**'s high record surplus rate of 13.0 percent.

Institutional Encounters:

- When comparing the DHB-submitted data to the PHP-submitted data and vice versa, the sum of the match and partial match rates was more than 95.0 percent for all PHPs, except for **Carolina Complete** and **WellCare**. For both PHPs, the sum of the match and partial match rates was 94.1 percent when comparing DHB's data to the PHP-submitted data. This indicates that at least 94.0 percent of encounters that were in the DHB-submitted data could be found in the PHP-submitted data.
- All PHPs had similar match rates when comparing DHB-submitted data to the PHP-submitted data and vice versa, except for **AmeriHealth**.
  - For **AmeriHealth**, there was a higher match rate (93.1 percent compared to 74.8 percent) and a lower partial match rate (6.7 percent compared to 24.6 percent) when evaluating the DHB-submitted data against the PHP-submitted data compared to evaluating the PHP-submitted data against the DHB-submitted data. These large differences could be explained by the presence of claim lines that were submitted as paid in the **AmeriHealth**-submitted data that were marked as denied in the DHB-submitted data, and therefore, excluded from the analysis.
- When comparing DHB's data to the PHP-submitted data, the no match rates were 2.4 percent or lower excluding rates for **Carolina Complete** (5.9 percent) and **WellCare** (6.0 percent). This indicates that approximately 6.0 percent of claim numbers were present in DHB's data that could not be found in the PHPs' data.
  - Almost 6.0 percent of claim numbers identified in the DHB-submitted data were not found in the PHP-submitted data for **Carolina Complete** and **WellCare**. However, about half of these unmatched claims could be traced to the PHP-submitted data by matching on a combination of *Beneficiary ID, Detail Service To Date,* and *Billing Provider NPI*. The remaining half of the records only identified in DHB's data were records marked as void that the PHPs did not submit to HSAG, as discussed in Table 3-1.

Pharmacy Encounters:

- For all PHPs, the match rates were similar to the *Days Supply* accuracy rates, as displayed in Table 3-11. This indicates that records which could be matched contained the same data populated in both the PHP-submitted and DHB-submitted data. Additionally, this also suggests that both data sources contained the same number of lines within a matching claim number.
- Additionally, the no match rates were equal to the omission and surplus rates, as displayed in Table 3-1. This indicates that partial match rates were due to records that contributed to the element omission or element surplus rates, or records that contained discrepant values.

4. Discussion

Conclusions

Throughout this section, lower rates indicate better performance for omission and surplus rates while higher rates indicate better performance for accuracy rates.

Record Completeness

HSAG evaluated the record-level data completeness of DHB's encounter data by investigating the record omission and record surplus in DHB's data compared to each PHP's submitted data. Generally, most record omission and surplus rates were below the 5.0 percent threshold, with only a few instances with rates above 5.0 percent. For both professional and institutional encounters, **AmeriHealth** had a record omission rate of 7.6 percent and 17.4 percent, respectively. In both encounter types, **AmeriHealth** submitted claim lines marked as paid that matched claim lines DHB submitted as denied. The EDV study restricted data to paid lines; however, if lines marked as denied that were part of a claim marked as paid at the header level were included in the analysis, the record omission rates for **AmeriHealth** would drop to 0.1 percent and 0.7 percent, respectively. The remaining PHPs for professional, institutional, and pharmacy encounters all had record omission rates below 5.0 percent.

For record surplus rates, **UnitedHealthcare** had a professional encounter surplus rate of 13.0 percent, while **Carolina Complete** and **WellCare** had institutional encounter surplus rates of 10.9 percent and 10.6 percent, respectively. For all PHPs, the high surplus rates could be explained by the PHPs not submitting all voided records. When restricting the surplus rate to final, paid claims, the professional encounter record surplus rate for **UnitedHealthcare** would drop to 0.2 percent, the institutional record surplus rate for **Carolina Complete** would drop to 5.1 percent, and the institutional encounter record surplus rate for **WellCare** would drop to 4.4 percent. Interestingly, nearly all the professional surplus records for **UnitedHealthcare** were voided value-based payment claims. The remaining PHPs for professional, institutional, and pharmacy encounters had record surplus rates below 5.0 percent.

Data Element Completeness and Accuracy

For records that could be matched between both data sources, HSAG evaluated the element-level completeness of DHB's encounter data by assessing element omission and element surplus rates for key data elements relevant to each encounter type. Additionally, HSAG evaluated the element-level accuracy of DHB's encounter data by assessing records that were present in both DHB's data and the PHPs' submitted data with the same non-missing values for a given data element.

Table 4-1 displays the number of key data elements with element omission (the percentage of records with values present in the PHPs' submitted data but not in DHB's submitted data) or element surplus (the percentage of records with values present in DHB's submitted data but not in the PHPs' submitted data) rates greater than 5.0 percent, and the number of key data elements with element-level accuracy

(the percentage of records with the same non-missing values for a given data element in both the DHB's submitted data and the PHPs' submitted data) rates lower than 95.0 percent.

Table 4-1—Number of Data Elements With Element Omission or Element Surplus Rates Greater Than 5.0 Percent and Number of Data Elements With Element-Level Accuracy Rates Lower Than 95.0 Percent

PHP	Ameri-Health	Carolina Complete	Healthy Blue	United-Healthcare	WellCare	Statewide
Professional Encounters (14 Key Data Elements)						
Element Omission	2	3	0	0	0	**2**
Element Surplus	0	0	0	0	0	**0**
Element-Level Accuracy	2	0	0	0	0	**0**
Institutional Encounters (20 Key Data Elements)						
Element Omission	0	0	0	2	1	**0**
Element Surplus	0	0	0	0	0	**0**
Element-Level Accuracy	2	2	1	3	3	**3**
Pharmacy Encounters (7 Key Data Elements)						
Element Omission	0	0	0	0	0	**0**
Element Surplus	0	0	0	0	0	**0**
Element-Level Accuracy	2	1	1	2	1	**2**

Element Completeness

Across all encounter types, the element surplus and omission rates were consistently low for matched records. For professional encounters, three of the 14 key data elements had one or more PHPs with an element omission rate greater than 5.0 percent. Both **AmeriHealth** and **Carolina Complete** had high element omission rates for *Rendering Provider NPI* and *Rendering Provider Taxonomy Code*, while **Carolina Complete** also had a high element omission rate for *Referring Provider NPI*. For both PHPs, nearly all records in which the *Rendering Provider NPI* value was not populated in the DHB-submitted data had the same values populated for both *Rendering Provider NPI* and *Billing Provider NPI* in the PHP-submitted data. Likewise, for nearly all of the records in the **Carolina Complete**-submitted data that contained a *Referring Provider NPI* value when the DHB-submitted data did not contain this value, the *Referring Provider NPI* matched the *Rendering Provider NPI*. Additionally, for both **AmeriHealth** and **Carolina Complete**, whenever *Rendering Provider NPI* was missing in the DHB-submitted data, *Rendering Provider Taxonomy* Code was also missing. No PHPs had element surplus rates greater than 5.0 percent, indicating that DHB's data rarely contained values that were missing in the PHP-submitted data.

For institutional encounters, three of the 20 key data elements had one or more PHPs with an element omission rate greater than 5.0 percent. In 15.3 percent of matched records, the **UnitedHealthcare**-

submitted data contained a *Detail Service From Date* and a *Detail Service To Date* value, while the DHB-submitted data did not contain these values. For nearly all of these records, the *Detail Service From Date* matched the *Header Service From Date,* and the *Detail Service To Date* matched the *Header Service To Date*. Additionally, 17.1 percent of the **WellCare** matched records contained *Secondary Diagnosis Codes*, while the DHB-submitted data did not contain a value for this data element. In these records, the *Secondary Diagnosis Codes* data element in the **WellCare**-submitted data matched the *Primary Diagnosis Code*. Like professional encounters, no PHPs had element surplus rates greater than 5.0 percent.

For pharmacy encounters, no PHPs had an element omission or element surplus rate greater than 5.0 percent. In fact, all PHPs had an element omission or element surplus rate of <0.1 percent across the seven key data elements.

Element Accuracy

Next, HSAG evaluated the element-level accuracy of DHB's encounter data by assessing records that were present in both DHB's data and the PHPs' submitted data with the same non-missing values for a given data element. Across all encounter types, the element-level accuracy rates were consistently high for matched records that both contained a non-missing value. For professional encounters, two of the 14 key data elements had one PHP with an element-level accuracy rate less than 95.0 percent. For both the *Header Paid Amount* and *Detail Paid Amount* data elements, 91.5 percent of matched records for **AmeriHealth** contained the same values in the PHP-submitted and DHB-submitted data. In all records with mismatching values, the DHB-submitted data contained a higher *Paid Amount* value. Interestingly, nearly all of these records were value-based payment claims. All other key data elements across all PHPs had accuracy rates greater than 95.0 percent, with most accuracy rates at 99.9 percent or higher.

For institutional encounters, five of the 20 key data elements had one or more PHPs with an element-level accuracy rate less than 95.0 percent. All PHPs had low accuracy rates for the *Surgical Procedure Codes* data element. In addition, **WellCare** had low accuracy rates for the *Header Service To Date* and *Secondary Diagnosis Codes* data elements, **UnitedHealthcare** had a low accuracy rate for the *Service Units* data element, and **AmeriHealth**, **Carolina Complete**, and **UnitedHealthcare** each had low accuracy rates for the *Type of Bill Code* data element. For the *Surgical Procedure Codes* data element, PHPs always had a greater number of surgical procedure codes compared to the DHB-submitted data. Additionally, for the *Type of Bill Code* data element, PHPs with lower accuracy rates almost always varied with the DHB-submitted data in the third digit, which specifies the billing frequency. All other key data elements across all PHPs had accuracy rates greater than 95.0 percent, with most accuracy rates at 99.9 percent or higher.

For pharmacy encounters, two of the seven key data elements had one or more PHPs with an element-level accuracy rate less than 95.0 percent. All PHPs had low accuracy rates for the *Days Supply* data element, while **AmeriHealth** and **UnitedHealthcare** also had low accuracy rates for the *Paid Amount* data element. In nearly all records for all PHPs that contained a mismatch for both data elements, the DHB-submitted data contained a negative value, whereas the PHP-submitted data contained the same number as a positive value. Interestingly, nearly all of these records were marked as void. All other key

data elements across all PHPs had accuracy rates greater than 95.0 percent, with most accuracy rates 99.9 percent or higher.

All-Element Accuracy

Finally, HSAG evaluated the all-element accuracy by assessing the records present in both data sources with the same values (missing or non-missing) for all data elements relevant to each encounter type. While no statewide all-element accuracy rates were above 95.0 percent, professional encounters had the highest all-element accuracy rate at 86.3 percent, while institutional and pharmacy encounters had lower all-element accuracy rates, at 66.4 percent and 62.6 percent, respectively. For professional encounters, the higher element omission rates for *Rendering Provider NPI, Referring Provider NPI*, and *Rendering Provider Taxonomy Code*, and the lower element-level accuracy rates in the *Header Paid Amount* and *Detail Paid Amount* data elements contributed to the lower all-element accuracy rates. For institutional encounters, the higher element omission rates in the *Detail Service From Date*, *Detail Service To Date*, and *Secondary Diagnosis Codes* data elements, and the lower element-level accuracy rates in the *Header Service To Date*, *Secondary Diagnosis Codes*, *Service Units*, *Surgical Procedure Codes*, and *Type of Bill Code* data elements contributed to the lower all-element accuracy rates. For pharmacy encounters, the lower element-level accuracy rates in the *Days Supply* and *Paid Amount* data elements contributed to the lower all-element accuracy rates.

Overall Encounter Accuracy

HSAG assessed overall encounter accuracy based on the unique claim number of the encounter by evaluating the number of detail claim lines and the claim contents across all claim lines (regardless of claim line number). Across all encounter types, the no match rate was similar to the record omission and surplus rates, indicating that records not found in both data sources could be attributed to the claim number alone. Additionally, match and partial match rates were generally similar when comparing the claim numbers between the DHB-submitted data and the PHP-submitted data and vice versa. This indicates that claim numbers generally contained the same number of lines in both data sources and that the element omission, element surplus, and element-level accuracy rates contributed to the overall accuracy rates.

Recommendations

To improve the quality of the PHPs' encounter data submissions, HSAG offers the following recommendations to assist DHB and the PHPs in addressing opportunities for improvement.

- DHB should collaborate with the PHPs to investigate root causes of record omission and record surplus rates greater than 5.0 percent.
  - Since all instances of high record omission and surplus rates were due to voided claims, DHB should collaborate with the PHPs to ensure voided claims are submitted correctly.

- DHB should collaborate with the PHPs to investigate root causes of element omission and element surplus rates greater than 5.0 percent and accuracy rates lower than 95.0 percent. Doing so will allow DHB or the PHPs to address any issues related to encounter data completeness and accuracy.
  - Specifically, DHB should collaborate with the PHPs on submission guidelines for *Surgical Procedure Codes* since all PHPs submitted more values to HSAG than to DHB for all records that had mismatching values.
  - DHB should also ensure PHPs submit the third digit (i.e., the frequency code) in the *Type of Bill Code* data element accurately.
  - For pharmacy encounters, DHB should ensure that PHPs submit voided encounters correctly and accurately, specifically for values populated in the *Days Supply* and *Paid Amount* data elements.

Study Limitations

- The comparative analysis results presented in this study are dependent on the quality of encounter data submitted by DHB and the PHPs. Any substantial or systematic errors in the extraction of encounter data may bias the results and compromise the validity and reliability of study findings.
- The findings from the comparative analysis are associated with encounters with dates of service between July 1, 2022, and June 30, 2023, and submitted to DHB on or before December 31, 2023. Therefore, results may not reflect the current quality of DHB's and the PHPs' encounter data, or any changes implemented after January 2024.

Appendix A. Results for AmeriHealth Caritas North Carolina, Inc.

This section provides the comparative analysis results for **AmeriHealth** for the SFY 2023–2024 EDV activity.

Methodology

The goal of the comparative analysis was to evaluate the extent to which encounters the PHPs submitted to DHB, directly or indirectly via their subcontractors, were complete and accurate based on corresponding information stored in the PHPs' claims data systems. The encounter data were considered complete if the data reflected all services rendered to beneficiaries, and all data within the PHPs' encounter data systems had been submitted and successfully imported into DHB's EPS. For encounter data to be considered accurate, the data that the PHPs maintain should represent the actual services rendered; when they were rendered (i.e., the date of service); to whom they were rendered (i.e., the beneficiary); by whom they were rendered (i.e., the provider); and, if a payment was rendered in connection to the service, how much was paid. HSAG performed the comparative analysis on encounter data from both DHB and the PHPs with dates of service between **July 1, 2022**, and **June 30, 2023**. To ensure that the extracted data from both sources represented the same universe of encounters, the data targeted professional, institutional, and pharmacy encounters that the PHPs submitted to DHB on or before December 31, 2023, with a paid/adjudication date on or before November 30, 2023. These anchor dates allowed enough time for the encounters to be submitted, processed, and available for evaluation in DHB's EPS. The comparative analysis involved three key steps:

- HSAG developed a data requirements document that defined the data submission requirements for the PHPs' encounter data. HSAG hosted a technical assistance meeting with the PHPs to review the data requirements document.
- HSAG conducted file reviews of submitted encounters from DHB and the PHPs.
- HSAG conducted a comparative analysis between DHB's encounter data and the PHPs' encounter data.

Comparative Analysis Results

This section presents findings from comparative analysis results of the professional, institutional, and pharmacy encounter data maintained by DHB and the PHP.

Encounter Data Record Omission and Record Surplus

Encounter record omission and surplus rates are summary metrics designed to evaluate discrepancies between two data sources—i.e., primary and secondary. The primary data source refers to data maintained by an organization (e.g., a PHP) responsible for sending data to another organization (e.g.,

DHB). The secondary data source refers to data acquired by the receiving organization. By comparing these two data sources (i.e., primary and secondary), the analysis yields the percentage of records contained in one source and not the other, and vice versa. Therefore, encounter record omission refers to the percentage of encounters reported in the primary data source but missing from the secondary data source. For this analysis, the omission rate identifies the percentage of encounters reported by a PHP that were missing from DHB's data. Similarly, the encounter record surplus rate refers to the percentage of encounters reported in the secondary data source (DHB) that were missing from the primary data source (the PHP).

Table A-1 illustrates the percentage of records present in the PHP-submitted files that were not found in DHB's files (record omission) and the percentage of records present in DHB's files but not present in the PHP-submitted files (record surplus). **Lower rates indicate better performance for both record omission and record surplus.**

Table A-1—Record Omission and Surplus Rates by Encounter Type

Encounter Type	Record Omission *(PHP Records Not Found in DHB Data)*			Record Surplus *(DHB Records Not Found in PHP Data)*		
	Denominator	Numerator	Rate	Denominator	Numerator	Rate
Professional Encounters	11,093,291	846,011	7.6%	10,258,406	11,126	0.1%
Institutional Encounters	2,396,417	416,198	17.4%	1,988,765	8,546	0.4%
Pharmacy Encounters	2,185,414	30,791	1.4%	2,164,474	9,851	0.5%

Note: Lower rates indicate better performance.
Red text indicates rates greater than 5.0 percent.

Data Element Completeness

HSAG based data element completeness measures on the number of records that matched in both DHB's submitted data and the PHPs' submitted data. HSAG evaluated element-level completeness based on element omission and element surplus rates. The element omission rate represents the percentage of records with values present in the PHPs' submitted data but not in DHB's submitted data. Similarly, the element surplus rate reports the percentage of records with values present in DHB's submitted data but not in the PHPs' submitted data. For the element omission and surplus indicators, lower rates indicate better performance. However, for the element missing values and element present values indicators, lower or higher rates do not indicate better or worse performance. Encounter data element omission and surplus results, as well as percent missing and present indicators, for each encounter type are presented in Table A-2 through Table A-4.

Table A-2—Data Element Completeness: Professional Encounters

Key Data Element	Element Omission (Only Populated in PHP Data)		Element Surplus (Only Populated in DHB Data)		Element Missing (Not Populated in Either)	
	Number of Records[1]	Rate	Number of Records[2]	Rate	Number of Records[3]	Rate
Number of Matched Records: 10,247,280						
Beneficiary ID	0	0.0%	10,911	0.1%	0	0.0%
Detail Service From Date	0	0.0%	0	0.0%	0	0.0%
Detail Service To Date	0	0.0%	0	0.0%	0	0.0%
Billing Provider NPI	0	0.0%	0	0.0%	0	0.0%
Rendering Provider NPI	6,596,033	64.4%	0	0.0%	33,747	0.3%
Referring Provider NPI	0	0.0%	1,507	<0.1%	8,419,786	82.2%
Rendering Provider Taxonomy Code	6,596,033	64.4%	0	0.0%	0	0.0%
Primary Diagnosis Code	0	0.0%	0	0.0%	0	0.0%
Secondary Diagnosis Codes	5	<0.1%	3	<0.1%	7,545,935	73.6%
CPT/HCPCS Code	0	0.0%	0	0.0%	0	0.0%
CPT/HCPCS Code Modifiers	8	<0.1%	13,497	0.1%	2,380,871	23.2%
Service Units	0	0.0%	0	0.0%	0	0.0%
Header Paid Amount	0	0.0%	0	0.0%	0	0.0%
Detail Paid Amount	0	0.0%	0	0.0%	0	0.0%

Note: Lower rates indicate better performance.
[1] Indicates the number of records with values not in DHB's file.
[2] Indicates the number of records with values not in PHPs' files.
[3] Indicates the number of records with missing values in both files.
Red text indicates rates greater than 5.0 percent.

Table A-3—Data Element Completeness: Institutional Encounters

Key Data Element	Element Omission (Only Populated in PHP Data)		Element Surplus (Only Populated in DHB Data)		Element Missing (Not Populated in Either)	
	Number of Records[1]	Rate	Number of Records[2]	Rate	Number of Records[3]	Rate
Number of Matched Records: 1,980,219						
Beneficiary ID	0	0.0%	0	0.0%	0	0.0%
Header Service From Date	0	0.0%	0	0.0%	0	0.0%

Key Data Element	Element Omission (Only Populated in PHP Data)		Element Surplus (Only Populated in DHB Data)		Element Missing (Not Populated in Either)	
	Number of Records[1]	Rate	Number of Records[2]	Rate	Number of Records[3]	Rate
Header Service To Date	0	0.0%	0	0.0%	0	0.0%
Detail Service From Date	0	0.0%	0	0.0%	0	0.0%
Detail Service To Date	0	0.0%	0	0.0%	0	0.0%
Billing Provider NPI	0	0.0%	0	0.0%	0	0.0%
Attending Provider NPI	0	0.0%	0	0.0%	694	<0.1%
Referring Provider NPI	17	<0.1%	0	0.0%	1,905,915	96.2%
Primary Diagnosis Code	0	0.0%	0	0.0%	0	0.0%
Secondary Diagnosis Codes	0	0.0%	0	0.0%	375,711	19.0%
Admission Diagnosis Code	0	0.0%	0	0.0%	1,950,604	98.5%
CPT/HCPCS Code	8	<0.1%	5	<0.1%	90,956	4.6%
CPT/HCPCS Code Modifiers	24	<0.1%	24	<0.1%	1,489,677	75.2%
Service Units	0	0.0%	0	0.0%	0	0.0%
Surgical Procedure Codes	0	0.0%	0	0.0%	1,962,129	99.1%
Revenue Code	0	0.0%	0	0.0%	0	0.0%
DRG	0	0.0%	630	<0.1%	1,952,297	98.6%
Type of Bill Code	0	0.0%	0	0.0%	0	0.0%
Header Paid Amount	0	0.0%	0	0.0%	0	0.0%
Detail Paid Amount	0	0.0%	0	0.0%	0	0.0%

Note: Lower rates indicate better performance.
[1] Indicates the number of records with values not in DHB's file.
[2] Indicates the number of records with values not in PHPs' files.
[3] Indicates the number of records with missing values in both files.

Table A-4—Data Element Completeness: Pharmacy Encounters

Key Data Element	Element Omission (Only Populated in PHP Data)		Element Surplus (Only Populated in DHB Data)		Element Missing (Not Populated in Either)	
	Number of Records[1]	Rate	Number of Records[2]	Rate	Number of Records[3]	Rate
Number of Matched Records: 2,154,623						
Beneficiary ID	0	0.0%	0	0.0%	0	0.0%
Date of Service	0	0.0%	0	0.0%	0	0.0%
Billing Provider NPI	0	0.0%	0	0.0%	0	0.0%
Prescribing Provider NPI	0	0.0%	0	0.0%	0	0.0%
NDC	0	0.0%	0	0.0%	0	0.0%
Days Supply	0	0.0%	0	0.0%	0	0.0%
Paid Amount	0	0.0%	0	0.0%	0	0.0%

Note: Lower rates indicate better performance.
[1] Indicates the number of records with values not in DHB's file.
[2] Indicates the number of records with values not in PHPs' files.
[3] Indicates the number of records with missing values in both files.

Data Element Accuracy

Data element accuracy is limited to those records that have values present in both data sources. HSAG does not include records in the numerator of the data element present indicator or denominator of data element accuracy if values are missing in at least one data source. The numerator of data element accuracy is the number of records with the same non-missing values for a given data element. Higher data element accuracy rates indicate that the values populated for a data element in DHB's submitted encounter data and PHPs' submitted encounter data are the same and thus more accurate. Therefore, **for the accuracy indicator, a higher rate indicates better performance**. Encounter data element accuracy results for each encounter type are presented in Table A-5 through Table A-7.

Table A-5—Data Element Accuracy: Professional Encounters

Key Data Element	Number of Records With Values Populated in Both Data Sources	Percent Present	Number of Records With Same Values Populated in Both Data Sources	Percent Accuracy
Beneficiary ID	10,236,369	99.9%	10,231,815	>99.9%
Detail Service From Date	10,247,280	100%	10,247,279	>99.9%
Detail Service To Date	10,247,280	100%	10,247,279	>99.9%
Billing Provider NPI	10,247,280	100%	10,238,014	99.9%
Rendering Provider NPI	3,617,500	35.3%	3,617,500	100%

Key Data Element	Number of Records With Values Populated in Both Data Sources	Percent Present	Number of Records With Same Values Populated in Both Data Sources	Percent Accuracy
Referring Provider NPI	1,825,987	17.8%	1,825,987	100%
Rendering Provider Taxonomy Code	3,651,247	35.6%	3,651,229	>99.9%
Primary Diagnosis Code	10,247,280	100%	10,247,263	>99.9%
Secondary Diagnosis Codes	2,701,337	26.4%	2,666,517	98.7%
CPT/HCPCS Code	10,247,280	100%	10,223,624	99.8%
CPT/HCPCS Code Modifiers	7,852,904	76.6%	7,842,747	99.9%
Service Units	10,247,280	100%	10,223,909	99.8%
Header Paid Amount	10,247,280	100%	9,371,331	91.5%
Detail Paid Amount	10,247,280	100%	9,371,430	91.5%

Red text indicates rates lower than 95.0 percent.

Table A-6—Data Element Accuracy: Institutional Encounters

Key Data Element	Number of Records With Values Populated in Both Data Sources	Percent Present	Number of Records With Same Values Populated in Both Data Sources	Percent Accuracy
Beneficiary ID	1,980,219	100%	1,979,487	>99.9%
Header Service From Date	1,980,219	100%	1,980,212	>99.9%
Header Service To Date	1,980,219	100%	1,980,219	100%
Detail Service From Date	1,980,219	100%	1,980,200	>99.9%
Detail Service To Date	1,980,219	100%	1,980,199	>99.9%
Billing Provider NPI	1,980,219	100%	1,980,219	100%
Attending Provider NPI	1,979,525	>99.9%	1,979,525	100%
Referring Provider NPI	74,287	3.8%	74,287	100%
Primary Diagnosis Code	1,980,219	100%	1,980,198	>99.9%
Secondary Diagnosis Codes	1,604,508	81.0%	1,604,388	>99.9%
Admission Diagnosis Code	29,615	1.5%	29,615	100%
CPT/HCPCS Code	1,889,250	95.4%	1,889,117	>99.9%

Key Data Element	Number of Records With Values Populated in Both Data Sources	Percent Present	Number of Records With Same Values Populated in Both Data Sources	Percent Accuracy
CPT/HCPCS Code Modifiers	490,494	24.8%	489,797	99.9%
Service Units	1,980,219	100%	1,959,713	99.0%
Surgical Procedure Codes	18,090	0.9%	15,627	86.4%
Revenue Code	1,980,219	100%	1,980,143	>99.9%
DRG	27,292	1.4%	27,292	100%
Type of Bill Code	1,980,219	100%	1,830,932	92.5%
Header Paid Amount	1,980,219	100%	1,958,906	98.9%
Detail Paid Amount	1,980,219	100%	1,959,379	98.9%

Red text indicates rates lower than 95.0 percent.

Table A-7—Data Element Accuracy: Pharmacy Encounters

Key Data Element	Number of Records With Values Populated in Both Data Sources	Percent Present	Number of Records With Same Values Populated in Both Data Sources	Percent Accuracy
Beneficiary ID	2,154,623	100%	2,154,072	>99.9%*
Date of Service	2,154,623	100%	2,154,623	100%
Billing Provider NPI	2,154,623	100%	2,154,623	100%
Prescribing Provider NPI	2,154,623	100%	2,154,525	>99.9%
NDC	2,154,623	100%	2,151,256	99.8%
Days Supply	2,154,623	100%	1,870,128	86.8%
Paid Amount	2,154,623	100%	1,878,711	87.2%

Red text indicates rates lower than 95.0 percent.

* The Beneficiary ID for AmeriHealth was modified in DHB's data to remove the last digit. Doing so increased the accuracy rate from 0 percent to >99.9 percent.

All-Element Accuracy

All-element accuracy rates are calculated for records present in both data sources with the same values (missing or non-missing) for **all** key data elements relevant to each encounter type. The denominator for the all-element accuracy rate is defined differently from the denominator for the element accuracy rate since it includes data elements, even if values were missing in one or both data sources. If any of the data elements were counted toward element omission, element surplus, or an inaccurate value match, then the

record would not be included in the all-element accuracy numerator. The all-element accuracy rate results are not derived from the accuracy rate of each data element. Therefore, **higher rates indicate better performance.** The all-element accuracy results for each encounter type are presented in Table A-8.

Table A-8—All-Element Accuracy by Encounter Type

Encounter Type	Number of Records in Both Data Sources	Number of Records With Same Values Populated in Both Data Sources	All-Element Accuracy Rate
Professional Encounters	10,247,280	3,592,742	35.1%
Institutional Encounters	1,980,219	1,827,652	92.3%
Pharmacy Encounters	2,154,623	1,866,673	86.6%

Note: Higher rates indicate better performance.

Overall Encounter Accuracy

HSAG assessed overall encounter accuracy based on the unique claim number of the encounter, evaluating the encounter contents across all claim lines, regardless of line number. This analysis compared each PHP's data file to the respective DHB data file and vice versa (e.g., **AmeriHealth**'s professional encounters were compared to DHB's professional encounters and DHB's professional encounters were compared to **AmeriHealth**'s professional encounters). When the two data files were compared to each other, one data file was treated as the primary file and the other data file was treated as the secondary file. Using this method, HSAG took a multi-faceted approach to determine the percentage of claim numbers identified in the primary file that were not identified in the secondary file, were partially identified in the secondary file, or completely matched the secondary file.

First, HSAG identified the number of unique claim numbers in the primary file. If a claim number could not be identified in the secondary file, the claim number was considered a **No Match.** For the claim numbers identified in the secondary file, HSAG further assessed whether all key data elements contained in the primary file, regardless of claim line number, could be identified in the secondary file. If all detail lines and all key data elements associated with the claim number in the primary file were identified in the secondary file, the claim number was considered a **Match**. However, if the secondary file had a different number of detail lines than the primary file, or if one or more of the detail lines had data elements that could not be identified in the secondary file, the claim number was considered a **Partial Match**.

Since the analysis was repeated by swapping the primary and secondary data files, claim numbers could be identified as a match in one analysis and a partial match in the reversed analysis. For example, if a claim number from the primary file contained three detail lines and the secondary file for that same claim number only contained two detail lines with matching key data elements, then the claim number would be reported as a partial match for the primary file since not all detail lines and key data elements could be identified in the secondary file. However, when reversing the analysis, the claim number would

be considered a match if all the information contained in the two detail lines could be identified in the other data file. Therefore, all results displayed are based on the number of claims in the primary file, and **a higher match rate indicates better performance**. Table A-9 displays the overall encounter accuracy rates by encounter type.

Table A-9—Overall Encounter Accuracy by Encounter Type

Encounter Type	DHB to PHP			PHP to DHB		
	Match	Partial Match	No Match	Match	Partial Match	No Match
Professional Encounters	26.4%	73.5%	0.1%	22.7%	77.3%	0.1%
Institutional Encounters	93.1%	6.7%	0.3%	74.8%	24.6%	0.6%
Pharmacy Encounters	86.2%	13.3%	0.5%	85.4%	13.2%	1.4%

Note: The sum of Match, Partial Match, and No Match rates may not add up to 100 percent due to rounding.

Conclusions

Table A-10 summarizes findings from the comparative analysis.

Table A-10—Comparative Analysis Key Findings

Analysis	Key Findings
Encounter Data Record Omission and Record Surplus	**Professional Encounters** • Record omission was moderately high at 7.6 percent, which was due to the claim lines submitted as paid in the **AmeriHealth**-submitted data that were marked as denied in the DHB-submitted data. If the denied claim lines from the DHB-submitted data were included in the analysis, the record omission rate would drop to 0.1 percent. • The record surplus rate was low at 0.1 percent. **Institutional Encounters** • Record omission was high at 17.4 percent, which was due to the claim lines submitted as paid in the **AmeriHealth**-submitted data that were marked as denied in the DHB-submitted data. If the denied claim lines from the DHB-submitted data were included in the analysis, the record omission rate would drop to 0.7 percent. • The record surplus rate was low at 0.4 percent. **Pharmacy Encounters** • Record omission and surplus rates were below 5 percent, with 1.4 percent of the PHP-submitted records not identified in the DHB data (i.e., record omission), and 0.5 percent of the DHB-submitted records not identified in the PHP's data (i.e., record surplus).

Analysis	Key Findings
Data Element Completeness	**Professional Encounters** • Element omission rates were less than 0.1 percent for all elements, except for *Rendering Provider NPI* (64.4 percent) and *Rendering Provider Taxonomy Code* (64.4 percent). All records in which *Rendering Provider NPI* was not populated in the DHB-submitted data had the same values populated for both the *Rendering Provider NPI* and *Billing Provider NPI* in the PHP-submitted data. For every occurrence where the *Rendering Provider NPI* was missing in the DHB-submitted data, the *Rendering Provider Taxonomy Code* was also missing. • All element surplus rates were 0.1 percent or less. **Institutional Encounters** • All element omission and surplus rates were less than 0.1 percent. **Pharmacy Encounters** • All element omission and surplus rates were 0.0 percent.
Data Element Accuracy	**Professional Encounters** • ***Header Paid Amount*** and ***Detail Paid Amount***: Nearly all data elements had at least 98.7 percent accuracy, except for *Header Paid Amount* and *Detail Paid Amount* (91.5 percent each). Approximately 98.0 percent of the records that did not have matching values for *Header Paid Amount* and *Detail Paid Amount* were value-based payment claims. Furthermore, these records with mismatching values had higher DHB-submitted payment amounts than **AmeriHealth**-submitted payment amounts. **Institutional Encounters** • ***Surgical Procedure Codes:*** For all records that had mismatching *Surgical Procedure Codes* between the **AmeriHealth**-submitted and DHB-submitted data, the **AmeriHealth**-submitted data always had a greater number of surgical procedure codes submitted when compared to the DHB-submitted data. This resulted in a low element accuracy rate of 86.4 percent. • ***Type of Bill Code:*** For nearly all records that had mismatching *Type of Bill Code* values, the value varied in the third digit between the **AmeriHealth**-submitted and DHB-submitted data. This resulted in a low element accuracy rate of 92.5 percent. **Pharmacy Encounters** • ***Days Supply*****:** Discrepant records in DHB's data contained a negative *Days Supply* value, whereas the *Days Supply* value in the PHP-submitted data was positive. All of these records were marked as void in DHB's data. This resulted in an 86.8 percent accuracy rate. • ***Paid Amount*****:** Discrepant records in DHB's data contained a negative *Paid Amount* value, whereas the *Paid Amount* value in the PHP-submitted data was positive. All of

Analysis	Key Findings
	these records were marked as void in DHB's data. This resulted in an 87.2 percent accuracy rate.
All-Element Accuracy	**Professional Encounters** • Out of all the PHPs, **AmeriHealth** had the lowest all-element accuracy rate at 35.1 percent. This can be attributed to the high element omission rates for both *Rendering Provider NPI* and *Rendering Provider Taxonomy Code* (64.4 percent each), along with the moderately low element accuracy rate for *Header Paid Amount* and *Detail Paid Amount* (91.5 percent each). **Institutional Encounters** • The all-element accuracy rate for **AmeriHealth** was 92.3 percent, which can be ascribed to low data element accuracy rates for *Surgical Procedure Codes* (86.4 percent) and *Type of Bill Code* (92.5 percent). **Pharmacy Encounters** • The all-element accuracy rate was 86.6 percent, which could be attributed to the *Days Supply* and *Paid Amount* accuracy rates (86.8 percent and 87.2 percent, respectively).
Overall Encounter Accuracy	**Professional Encounters** • Out of all the PHPs, **AmeriHealth** had the lowest match rates and highest partial match rates when comparing the DHB-submitted data to the PHP-submitted data and vice versa. This shows that between the **AmeriHealth**-submitted and DHB-submitted data, the **AmeriHealth**-submitted data did not contain all record lines as the DHB-submitted data, and vice versa. Additionally, this also indicates that for the lines that did match, the rate was negatively affected by high element omission or surplus rates, and low element accuracy rates. **Institutional Encounters** • The sums of the match and partial match rates when comparing the DHB-submitted data to the PHP-submitted data and vice versa were 99.8 percent and 99.4 percent respectively, which suggests that almost all the claim numbers that were in the DHB-submitted data were found in the PHP-submitted data and vice versa. **Pharmacy Encounters** • When comparing the DHB-submitted data to the PHP-submitted data and vice versa, match, partial match, and no match rates were similar. The match and partial match rates could be attributed to the *Days Supply* and *Paid Amount* accuracy rates, while the no match rates could be attributed to the record omission and surplus rates.

Based on the comparative analysis results for **AmeriHealth**, HSAG identified the following areas of strength and opportunities for improvement.

Strengths

Strength #1: Record surplus rates for all encounter types, along with pharmacy encounter record omission rates, were below 5.0 percent. This indicates that encounters in both the DHB-submitted and PHP-submitted data could largely be identified in both data sources.

Strength #2: All but two professional encounter element omission and all element surplus rates, all institutional encounter element omission and element surplus rates, and all pharmacy encounter element omission and surplus rates were less than 5.0 percent. This indicates that records which could be matched between the DHB-submitted and PHP-submitted data were largely complete.

Strength #3: All but two elements in each encounter type had an accuracy rate greater than 95.0 percent. This indicates that records which could be matched between the DHB-submitted and PHP-submitted data largely contained the same values.

Opportunities for Improvement

Weakness #1: The record omission rates for professional and institutional encounters were high at 7.6 percent and 17.4 percent, respectively. This was due to the claim lines submitted as paid in the **AmeriHealth**-submitted data that were marked as denied in the DHB-submitted data. **AmeriHealth** should ensure that the claim status of each record is accurate.

Weakness #2: Although the encounter element omission rates were low for most data elements between the DHB-submitted and PHP-submitted data, **AmeriHealth** should ensure the following data elements are submitted completely:

- Professional encounters: *Rendering Provider NPI* and *Rendering Provider Taxonomy Code*.

Weakness #3: Although matched records largely contained similar values between the DHB-submitted and PHP-submitted data, **AmeriHealth** should ensure the following data elements have accurate values:

- Professional encounters: *Header Paid Amount* and *Detail Paid Amount*.
- Institutional encounters: *Surgical Procedure Codes* and *Type of Bill Code*.
- Pharmacy encounters: *Days Supply* and *Paid Amount*.

Appendix B. Results for Carolina Complete Health, Inc.

This section provides the comparative analysis results for **Carolina Complete** for the SFY 2023–2024 EDV activity.

Methodology

The goal of the comparative analysis was to evaluate the extent to which encounters the PHPs submitted to DHB, directly or indirectly via their subcontractors, were complete and accurate based on corresponding information stored in the PHPs' claims data systems. The encounter data were considered complete if the data reflected all services rendered to beneficiaries, and all data within the PHPs' encounter data systems had been submitted and successfully imported into DHB's EPS. For encounter data to be considered accurate, the data that the PHPs maintain should represent the actual services rendered; when they were rendered (i.e., the date of service); to whom they were rendered (i.e., the beneficiary); by whom they were rendered (i.e., the provider); and, if a payment was rendered in connection to the service, how much was paid. HSAG performed the comparative analysis on encounter data from both DHB and the PHPs with dates of service between **July 1, 2022**, and **June 30, 2023**. To ensure that the extracted data from both sources represented the same universe of encounters, the data targeted professional, institutional, and pharmacy encounters that the PHPs submitted to DHB on or before December 31, 2023, with a paid/adjudication date on or before November 30, 2023. These anchor dates allowed enough time for the encounters to be submitted, processed, and available for evaluation in DHB's EPS. The comparative analysis involved three key steps:

- HSAG developed a data requirements document that defined the data submission requirements for the PHPs' encounter data. HSAG hosted a technical assistance meeting with the PHPs to review the data requirements document.
- HSAG conducted file reviews of submitted encounters from DHB and the PHPs.
- HSAG conducted a comparative analysis between DHB's encounter data and the PHPs' encounter data.

Comparative Analysis Results

This section presents findings from comparative analysis results of the professional, institutional, and pharmacy encounter data maintained by DHB and the PHP.

Record Surplus

Encounter record omission and surplus rates are summary metrics designed to evaluate discrepancies between two data sources—i.e., primary and secondary. The primary data source refers to data maintained by an organization (e.g., a PHP) responsible for sending data to another organization (e.g., DHB). The secondary data source refers to data acquired by the receiving organization. By comparing these two data sources (i.e., primary and secondary), the analysis yields the percentage of records contained in one source and not the other, and vice versa. Therefore, encounter record omission refers to the percentage of encounters reported in the primary data source but missing from the secondary data source. For this analysis, the omission rate identifies the percentage of encounters reported by a PHP that were missing from DHB's data. Similarly, the encounter record surplus rate refers to the percentage of encounters reported in the secondary data source (DHB) that were missing from the primary data source (the PHP).

Table B-1 illustrates the percentage of records present in the PHP-submitted files that were not found in DHB's files (record omission) and the percentage of records present in DHB's files but not present in the PHP-submitted files (record surplus). **Lower rates indicate better performance for both record omission and record surplus.**

Table B-1—Record Omission and Surplus Rates by Encounter Type

Encounter Type	Record Omission *(PHP Records Not Found in DHB Data)*			Record Surplus *(DHB Records Not Found in PHP Data)*		
	Denominator	Numerator	Rate	Denominator	Numerator	Rate
Professional Encounters	8,557,692	27,212	0.3%	8,654,523	124,043	1.4%
Institutional Encounters	1,608,048	41,902	2.6%	1,758,468	192,322	10.9%
Pharmacy Encounters	2,145,829	44,029	2.1%	2,140,741	38,941	1.8%

Note: Lower rates indicate better performance.
Red text indicates rates greater than 5.0 percent.

Data Element Completeness

HSAG based data element completeness measures on the number of records that matched in both DHB's submitted data and the PHPs' submitted data. HSAG evaluated element-level completeness based on element omission and element surplus rates. The element omission rate represents the percentage of records with values present in the PHPs' submitted data but not in DHB's submitted data. Similarly, the element surplus rate reports the percentage of records with values present in DHB's submitted data but not in the PHPs' submitted data. **For the element omission and surplus indicators, lower rates indicate better performance.** However, for the element missing values and element present values indicators, lower or higher rates do not indicate better or worse performance. Encounter data element omission and surplus results, as well as percent missing and present indicators, for each encounter type are presented in Table B-2 through Table B-4.

Table B-2—Data Element Completeness: Professional Encounters

Key Data Element	Element Omission (Only Populated in PHP Data)		Element Surplus (Only Populated in DHB Data)		Element Missing (Not Populated in Either)	
	Number of Records[1]	Rate	Number of Records[2]	Rate	Number of Records[3]	Rate
Number of Matched Records: 8,530,480						
Beneficiary ID	0	0.0%	0	0.0%	0	0.0%
Detail Service From Date	0	0.0%	0	0.0%	0	0.0%
Detail Service To Date	0	0.0%	0	0.0%	0	0.0%
Billing Provider NPI	0	0.0%	4,085	<0.1%	0	0.0%
Rendering Provider NPI	641,851	7.5%	0	0.0%	4,827,187	56.6%
Referring Provider NPI	438,837	5.1%	0	0.0%	7,082,380	83.0%
Rendering Provider Taxonomy Code	645,945	7.6%	69	<0.1%	4,796,932	56.2%
Primary Diagnosis Code	0	0.0%	0	0.0%	0	0.0%
Secondary Diagnosis Codes	25	<0.1%	0	0.0%	6,254,835	73.3%
CPT/HCPCS Code	0	0.0%	31,230	0.4%	0	0.0%
CPT/HCPCS Code Modifiers	1	<0.1%	346	<0.1%	2,078,578	24.4%
Service Units	0	0.0%	0	0.0%	0	0.0%
Header Paid Amount	0	0.0%	0	0.0%	0	0.0%
Detail Paid Amount	0	0.0%	0	0.0%	0	0.0%

Note: Lower rates indicate better performance.
[1] Indicates the number of records with values not in DHB's file.
[2] Indicates the number of records with values not in PHPs' files.
[3] Indicates the number of records with missing values in both files.
Red text indicates rates greater than 5.0 percent.

Table B-3—Data Element Completeness: Institutional Encounters

Key Data Element	Element Omission (Only Populated in PHP Data)		Element Surplus (Only Populated in DHB Data)		Element Missing (Not Populated in Either)	
	Number of Records[1]	Rate	Number of Records[2]	Rate	Number of Records[3]	Rate
Number of Matched Records: 1,566,146						
Beneficiary ID	0	0.0%	0	0.0%	0	0.0%
Header Service From Date	0	0.0%	0	0.0%	0	0.0%
Header Service To Date	0	0.0%	0	0.0%	0	0.0%
Detail Service From Date	0	0.0%	0	0.0%	0	0.0%
Detail Service To Date	0	0.0%	0	0.0%	0	0.0%
Billing Provider NPI	0	0.0%	0	0.0%	0	0.0%
Attending Provider NPI	433	<0.1%	0	0.0%	0	0.0%
Referring Provider NPI	1,041	0.1%	0	0.0%	1,517,751	96.9%
Primary Diagnosis Code	0	0.0%	0	0.0%	0	0.0%
Secondary Diagnosis Codes	0	0.0%	0	0.0%	263,081	16.8%
Admission Diagnosis Code	77	<0.1%	0	0.0%	1,344,917	85.9%
CPT/HCPCS Code	0	0.0%	439	<0.1%	257,063	16.4%
CPT/HCPCS Code Modifiers	1	<0.1%	0	0.0%	1,258,514	80.4%
Service Units	0	0.0%	0	0.0%	0	0.0%
Surgical Procedure Codes	0	0.0%	0	0.0%	1,407,081	89.8%
Revenue Code	0	0.0%	0	0.0%	0	0.0%
DRG	1	<0.1%	62,929	4.0%	1,346,051	85.9%
Type of Bill Code	0	0.0%	0	0.0%	0	0.0%
Header Paid Amount	0	0.0%	0	0.0%	0	0.0%
Detail Paid Amount	0	0.0%	0	0.0%	0	0.0%

Note: Lower rates indicate better performance.
[1] Indicates the number of records with values not in DHB's file.
[2] Indicates the number of records with values not in PHPs' files.
[3] Indicates the number of records with missing values in both files.

Table B-4—Data Element Completeness: Pharmacy Encounters

Key Data Element	Element Omission (Only Populated in PHP Data)		Element Surplus (Only Populated in DHB Data)		Element Missing (Not Populated in Either)	
	Number of Records[1]	Rate	Number of Records[2]	Rate	Number of Records[3]	Rate
Number of Matched Records: 2,101,800						
Beneficiary ID	0	0.0%	0	0.0%	0	0.0%
Date of Service	0	0.0%	0	0.0%	0	0.0%
Billing Provider NPI	0	0.0%	0	0.0%	0	0.0%
Prescribing Provider NPI	0	0.0%	528	<0.1%	0	0.0%
NDC	0	0.0%	0	0.0%	0	0.0%
Days Supply	0	0.0%	0	0.0%	0	0.0%
Paid Amount	0	0.0%	0	0.0%	0	0.0%

Note: Lower rates indicate better performance.
[1] Indicates the number of records with values not in DHB's file.
[2] Indicates the number of records with values not in PHPs' files.
[3] Indicates the number of records with missing values in both files.

Data Element Accuracy

Data element accuracy is limited to those records that have values present in both data sources. HSAG does not include records in the numerator of the data element present indicator or denominator of data element accuracy if values are missing in at least one data source. The numerator of data element accuracy is the number of records with the same non-missing values for a given data element. Higher data element accuracy rates indicate that the values populated for a data element in DHB's submitted encounter data and PHPs' submitted encounter data are the same and thus more accurate. Therefore, for the accuracy indicator, a higher rate indicates better performance. Encounter data element accuracy results for each encounter type are presented in Table B-5 through Table B-7.

Table B-5—Data Element Accuracy: Professional Encounters

Key Data Element	Number of Records With Values Populated in Both Data Sources	Percent Present	Number of Records With Same Values Populated in Both Data Sources	Percent Accuracy
Beneficiary ID	8,530,480	100%	8,530,057	>99.9%
Detail Service From Date	8,530,480	100%	8,530,396	>99.9%
Detail Service To Date	8,530,480	100%	8,530,396	>99.9%
Billing Provider NPI	8,526,395	>99.9%	8,525,805	>99.9%
Rendering Provider NPI	3,061,442	35.9%	3,061,094	>99.9%

Key Data Element	Number of Records With Values Populated in Both Data Sources	Percent Present	Number of Records With Same Values Populated in Both Data Sources	Percent Accuracy
Referring Provider NPI	1,009,263	11.8%	1,009,249	>99.9%
Rendering Provider Taxonomy Code	3,087,534	36.2%	3,086,000	>99.9%
Primary Diagnosis Code	8,530,480	100%	8,529,446	>99.9%
Secondary Diagnosis Codes	2,275,620	26.7%	2,247,732	98.8%
CPT/HCPCS Code	8,499,250	99.6%	8,498,829	>99.9%
CPT/HCPCS Code Modifiers	6,451,555	75.6%	6,451,361	>99.9%
Service Units	8,530,480	100%	8,487,701	99.5%
Header Paid Amount	8,530,480	100%	8,506,926	99.7%
Detail Paid Amount	8,530,480	100%	8,521,836	99.9%

Table B-6—Data Element Accuracy: Institutional Encounters

Key Data Element	Number of Records With Values Populated in Both Data Sources	Percent Present	Number of Records With Same Values Populated in Both Data Sources	Percent Accuracy
Beneficiary ID	1,566,146	100%	1,565,977	>99.9%
Header Service From Date	1,566,146	100%	1,566,146	100%
Header Service To Date	1,566,146	100%	1,566,146	100%
Detail Service From Date	1,566,146	100%	1,566,146	100%
Detail Service To Date	1,566,146	100%	1,566,146	100%
Billing Provider NPI	1,566,146	100%	1,566,146	100%
Attending Provider NPI	1,565,713	>99.9%	1,565,713	100%
Referring Provider NPI	47,354	3.0%	47,354	100%
Primary Diagnosis Code	1,566,146	100%	1,566,146	100%
Secondary Diagnosis Codes	1,303,065	83.2%	1,302,386	99.9%
Admission Diagnosis Code	221,152	14.1%	221,152	100%
CPT/HCPCS Code	1,308,644	83.6%	1,308,644	100%
CPT/HCPCS Code Modifiers	307,631	19.6%	307,631	100%

Key Data Element	Number of Records With Values Populated in Both Data Sources	Percent Present	Number of Records With Same Values Populated in Both Data Sources	Percent Accuracy
Service Units	1,566,146	100%	1,538,608	98.2%
Surgical Procedure Codes	159,065	10.2%	142,889	89.8%
Revenue Code	1,566,146	100%	1,566,146	100%
DRG	157,165	10.0%	157,165	100%
Type of Bill Code	1,566,146	100%	1,317,106	84.1%
Header Paid Amount	1,566,146	100%	1,560,238	99.6%
Detail Paid Amount	1,566,146	100%	1,564,142	99.9%

Red text indicates rates lower than 95.0 percent.

Table B-7—Data Element Accuracy: Pharmacy Encounters

Key Data Element	Number of Records With Values Populated in Both Data Sources	Percent Present	Number of Records With Same Values Populated in Both Data Sources	Percent Accuracy
Beneficiary ID	2,101,800	100%	2,101,641	>99.9%
Date of Service	2,101,800	100%	2,101,800	100%
Billing Provider NPI	2,101,800	100%	2,100,030	99.9%
Prescribing Provider NPI	2,101,272	>99.9%	2,101,244	>99.9%
NDC	2,101,800	100%	2,098,504	99.8%
Days Supply	2,101,800	100%	1,394,186	66.3%
Paid Amount	2,101,800	100%	2,101,800	100%

Red text indicates rates lower than 95.0 percent.

All-Element Accuracy

All-element accuracy rates are calculated for records present in both data sources with the same values (missing or non-missing) for **all** key data elements relevant to each encounter type. The denominator for the all-element accuracy rate is defined differently from the denominator for the element accuracy rate since it includes data elements, even if values were missing in one or both data sources. If any of the data elements were counted toward element omission, element surplus, or an inaccurate value match, then the record would not be included in the all-element accuracy numerator. The all-element accuracy rate results are not derived from the accuracy rate of each data element. Therefore, **higher rates indicate better performance.** The all-element accuracy results for each encounter type are presented in Table B-8.

Table B-8—All-Element Accuracy by Encounter Type

Encounter Type	Number of Records in Both Data Sources	Number of Records With Same Values Populated in Both Data Sources	All-Element Accuracy Rate
Professional Encounters	8,530,480	7,351,999	86.2%
Institutional Encounters	1,566,146	1,236,165	78.9%
Pharmacy Encounters	2,101,800	1,390,028	66.1%

Note: Higher rates indicate better performance.

Overall Encounter Accuracy

HSAG assessed overall encounter accuracy based on the unique claim number of the encounter, evaluating the encounter contents across all claim lines, regardless of line number. This analysis compared each PHP's data file to the respective DHB data file and vice versa (e.g., **Carolina Complete**'s professional encounters were compared to DHB's professional encounters and DHB's professional encounters were compared to **Carolina Complete**'s professional encounters). When the two data files were compared to each other, one data file was treated as the primary file and the other data file was treated as the secondary file. Using this method, HSAG took a multi-faceted approach to determine the percentage of claim numbers identified in the primary file that were not identified in the secondary file, were partially identified in the secondary file, or completely matched the secondary file.

First, HSAG identified the number of unique claim numbers in the primary file. If a claim number could not be identified in the secondary file, the claim number was considered a **No Match.** For the claim numbers identified in the secondary file, HSAG further assessed whether all key data elements contained in the primary file, regardless of claim line number, could be identified in the secondary file. If all detail lines and all key data elements associated with the claim number in the primary file were identified in the secondary file, the claim number was considered a **Match**. However, if the secondary file had a different number of detail lines than the primary file, or if one or more of the detail lines had data elements that could not be identified in the secondary file, the claim number was considered a **Partial Match**.

Since the analysis was repeated by swapping the primary and secondary data files, claim numbers could be identified as a match in one analysis and a partial match in the reversed analysis. For example, if a claim number from the primary file contained three detail lines and the secondary file for that same claim number only contained two detail lines with matching key data elements, then the claim number would be reported as a partial match for the primary file since not all detail lines and key data elements could be identified in the secondary file. However, when reversing the analysis, the claim number would be considered a match if all the information contained in the two detail lines could be identified in the other data file. Therefore, all results displayed are based on the number of claims in the primary file, and **a higher match rate indicates better performance**. Table B-9 displays the overall encounter accuracy rates by encounter type.

Table B-9—Overall Encounter Accuracy by Encounter Type

Encounter Type	DHB to PHP			PHP to DHB		
	Match	Partial Match	No Match	Match	Partial Match	No Match
Professional Encounters	90.7%	8.6%	0.6%	91.2%	8.6%	0.2%
Institutional Encounters	77.2%	16.9%	5.9%	81.3%	17.6%	1.1%
Pharmacy Encounters	64.9%	33.2%	1.8%	64.8%	33.2%	2.1%

Note: The sum of Match, Partial Match, and No Match rates may not add up to 100 percent due to rounding.

Conclusions

Table B-10 summarizes findings from the comparative analysis.

Table B-10—Comparative Analysis Key Findings

Analysis	Key Findings
Encounter Data Record Omission and Record Surplus	**Professional Encounters** • Record omission and surplus rates were below 5 percent, with 0.3 percent of the PHP-submitted records not identified in the DHB data (i.e., record omission), and 1.4 percent of the DHB-submitted records not identified in the PHP's data (i.e., record surplus). **Institutional Encounters** • The record omission rate was low at 2.6 percent. • The record surplus rate was high at 10.9 percent, which was related to voided records that were not included in the **Carolina Complete**-submitted data. If voided records were excluded from the analysis, then the surplus rate would drop to 5.1 percent. **Pharmacy Encounters** • Record omission and surplus rates were below 5 percent, with 2.1 percent of the PHP-submitted records not identified in the DHB data (i.e., record omission), and 1.8 percent of the DHB-submitted records not identified in the PHP's data (i.e., record surplus).
Data Element Completeness	**Professional Encounters** • Element omission rates were less than 0.1 percent for all elements, except for *Rendering Provider NPI* (7.5 percent), *Referring Provider NPI* (5.1 percent), and *Rendering Provider Taxonomy Code* (7.6 percent). Greater than 99.9 percent of the records in which the *Rendering Provider NPI* was not populated in the DHB-submitted data had the same values populated for both the *Rendering Provider NPI* and *Billing Provider NPI* data elements in the PHP-submitted data. Likewise, greater than 99.0 percent of the matched records with *Referring Provider NPI* values not populated in the DHB-submitted data had the same values populated for *Rendering Provider NPI*

Analysis	Key Findings
	and *Referring Provider NPI* in the PHP-submitted data. Lastly, for every occurrence where *Rendering Provider NPI* was missing in the DHB-submitted data, *Rendering Provider Taxonomy Code* was also missing. • All element surplus rates were 0.4 percent or less. **Institutional Encounters** • All element omission and surplus rates were less than or equal to 4.0 percent. **Pharmacy Encounters** • All element omission and surplus rates were <0.1 percent.
Data Element Accuracy	**Professional Encounters** • All data elements had an element accuracy rate of at least 98.8 percent. **Institutional Encounters** • ***Surgical Procedure Codes:*** For all records that had mismatching *Surgical Procedure Codes* between the **Carolina Complete**-submitted and DHB-submitted data, the **Carolina Complete**-submitted data always had a greater number of surgical procedure codes submitted when compared to the DHB-submitted data. This resulted in a low element accuracy rate of 89.8 percent. ***Type of Bill Code:*** For nearly all records that had mismatching *Type of Bill Code* values, the value varied in the third digit between the **Carolina Complete**-submitted and DHB-submitted data. This resulted in a low element accuracy rate of 84.1 percent. **Pharmacy Encounters** • ***Days Supply*:** Discrepant records in DHB's data contained a negative *Days Supply* value, whereas the *Days Supply* value in the PHP-submitted data was positive. All of these records were marked as void in DHB's data. This resulted in a 66.3 percent accuracy rate.
All-Element Accuracy	**Professional Encounters** • The low all-element accuracy rate of 86.2 percent was directly affected by the moderately high element omission rates for *Rendering Provider NPI* (7.5 percent), *Referring Provider NPI* (5.1 percent), and *Rendering Provider Taxonomy Code* (7.6 percent). **Institutional Encounters** • The all-element accuracy rate for **Carolina Complete** was 78.9 percent, which can be ascribed to low data element accuracy rates for *Surgical Procedure Codes* (89.8 percent) and *Type of Bill Code* (84.1 percent). **Pharmacy Encounters**

Analysis	Key Findings
	• The all-element accuracy rate was 66.1 percent, which could be attributed to the *Days Supply* accuracy rate (66.3 percent).
Overall Encounter Accuracy	**Professional Encounters** • The sum of the match and partial match rates when comparing DHB-submitted data to the PHP-submitted data and vice versa was greater than 99.0 percent, indicating most records were found in both data sources and mainly contained the same values. The partial match rate of 8.6 percent can be attributed to the moderately high element omission rates for *Rendering Provider NPI*, *Referring Provider NPI*, and *Rendering Provider Taxonomy Code*, as well as the moderately low accuracy rates for *Header Paid Amount* and *Detail Paid Amount*. **Institutional Encounters** • The sums of the match and partial match rates when comparing the DHB-submitted data to the PHP-submitted data and vice versa were 94.1 percent and 98.9 percent, respectively. Although 5.9 percent of claim numbers that were in the DHB-submitted data were not found in the PHP-submitted data, about half of these unmatched claims could be traced to the PHP-submitted data by matching on a combination of *Beneficiary ID, Detail Service To Date,* and *Billing Provider NPI*. The other half of the records only identified in DHB's data were records marked as void that were not submitted by the PHPs. **Pharmacy Encounters** • When comparing the DHB-submitted data to the PHP-submitted data and vice versa, match, partial match, and no match rates were similar. The match and partial match rates could be attributed to the *Days Supply* accuracy rate, while the no match rates could be attributed to the record omission and surplus rates.

Based on the comparative analysis results for **Carolina Complete**, HSAG identified the following areas of strength and opportunities for improvement.

Strengths

Strength #1: Record surplus rates for professional and pharmacy encounter types, along with record omission rates for all encounter types, were below 5.0 percent. This indicates that encounters in both the DHB-submitted and PHP-submitted data could largely be identified in both data sources.

Strength #2: All but three professional encounter element omission and all surplus rates, all institutional encounter element omission and element surplus rates, and all pharmacy element omission and surplus rates were less than 5.0 percent. This indicates that records which could be matched between the DHB-submitted and PHP-submitted data were largely complete.

Strength #3: All professional encounter data elements, all but two institutional encounter data elements, and all but one pharmacy encounter data element had an accuracy rate greater than 95.0 percent. This

indicates that records which could be matched between the DHB-submitted and PHP-submitted data largely contained the same values.

Opportunities for Improvement

Weakness #1: The record surplus rate for institutional encounters was high at 10.9 percent. This was due to voided claims in the DHB-submitted data that were not identified in the PHP-submitted data. **Carolina Complete** should ensure records are submitted completely.

Weakness #2: Although the encounter element omission rates were low for most data elements between the DHB-submitted and PHP-submitted data, **Carolina Complete** should ensure the following data elements are submitted completely:

- Professional encounters: *Rendering Provider NPI*, *Referring Provider NPI*, and *Rendering Provider Taxonomy Code*.

Weakness #3: Although matched records largely contained similar values between the DHB-submitted and PHP-submitted data, **Carolina Complete** should ensure the following data elements have accurate values:

- Institutional encounters: *Surgical Procedure Code* and *Type of Bill Code*.
- Pharmacy encounters: *Days Supply*.

Appendix C. Results for Healthy Blue of North Carolina

This section provides the comparative analysis results for **Healthy Blue** for the SFY 2023–2024 EDV activity.

Methodology

The goal of the comparative analysis was to evaluate the extent to which encounters the PHPs submitted to DHB, directly or indirectly via their subcontractors, were complete and accurate based on corresponding information stored in the PHPs' claims data systems. The encounter data were considered complete if the data reflected all services rendered to beneficiaries, and all data within the PHPs' encounter data systems had been submitted and successfully imported into DHB's EPS. For encounter data to be considered accurate, the data that the PHPs maintain should represent the actual services rendered; when they were rendered (i.e., the date of service); to whom they were rendered (i.e., the beneficiary); by whom they were rendered (i.e., the provider); and, if a payment was rendered in connection to the service, how much was paid. HSAG performed the comparative analysis on encounter data from both DHB and the PHPs with dates of service between **July 1, 2022**, and **June 30, 2023**. To ensure that the extracted data from both sources represented the same universe of encounters, the data targeted professional, institutional, and pharmacy encounters that the PHPs submitted to DHB on or before December 31, 2023, with a paid/adjudication date on or before November 30, 2023. These anchor dates allowed enough time for the encounters to be submitted, processed, and available for evaluation in DHB's EPS. The comparative analysis involved three key steps:

- HSAG developed a data requirements document that defined the data submission requirements for the PHPs' encounter data. HSAG hosted a technical assistance meeting with the PHPs to review the data requirements document.
- HSAG conducted file reviews of submitted encounters from DHB and the PHPs.
- HSAG conducted a comparative analysis between DHB's encounter data and the PHPs' encounter data.

Comparative Analysis Results

This section presents findings from comparative analysis results of the professional, institutional, and pharmacy encounter data maintained by DHB and the PHP.

Encounter Data Record Omission and Record Surplus

Encounter record omission and surplus rates are summary metrics designed to evaluate discrepancies between two data sources—i.e., primary and secondary. The primary data source refers to data maintained by an organization (e.g., a PHP) responsible for sending data to another organization (e.g.,

DHB). The secondary data source refers to data acquired by the receiving organization. By comparing these two data sources (i.e., primary and secondary), the analysis yields the percentage of records contained in one source and not the other, and vice versa. Therefore, encounter record omission refers to the percentage of encounters reported in the primary data source but missing from the secondary data source. For this analysis, the omission rate identifies the percentage of encounters reported by a PHP that were missing from DHB's data. Similarly, the encounter record surplus rate refers to the percentage of encounters reported in the secondary data source (DHB) that were missing from the primary data source (the PHP).

Table C-1 illustrates the percentage of records present in the PHP-submitted files that were not found in DHB's files (record omission) and the percentage of records present in DHB's files but not present in the PHP-submitted files (record surplus). **Lower rates indicate better performance for both record omission and record surplus.**

Table C-1—Record Omission and Surplus Rates by Encounter Type

Encounter Type	Record Omission *(PHP Records Not Found in DHB Data)*			Record Surplus *(DHB Records Not Found in PHP Data)*		
	Denominator	Numerator	Rate	Denominator	Numerator	Rate
Professional Encounters	17,328,873	295,768	1.7%	17,080,351	47,246	0.3%
Institutional Encounters	3,216,638	45,141	1.4%	3,175,890	4,393	0.1%
Pharmacy Encounters	7,462,163	72,127	1.0%	7,397,000	6,964	0.1%

Note: Lower rates indicate better performance.

Data Element Completeness

HSAG based data element completeness measures on the number of records that matched in both DHB's submitted data and the PHPs' submitted data. HSAG evaluated element-level completeness based on element omission and element surplus rates. The element omission rate represents the percentage of records with values present in the PHPs' submitted data but not in DHB's submitted data. Similarly, the element surplus rate reports the percentage of records with values present in DHB's submitted data but not in the PHPs' submitted data. **For the element omission and surplus indicators, lower rates indicate better performance.** However, for the element missing values and element present values indicators, lower or higher rates do not indicate better or worse performance. Encounter data element omission and surplus results, as well as percent missing and present indicators, for each encounter type are presented in Table C-2 through Table C-4.

Table C-2—Data Element Completeness: Professional Encounters

Key Data Element	Element Omission (Only Populated in PHP Data)		Element Surplus (Only Populated in DHB Data)		Element Missing (Not Populated in Either)	
	Number of Records[1]	Rate	Number of Records[2]	Rate	Number of Records[3]	Rate
Number of Matched Records: 17,033,105						
Beneficiary ID	0	0.0%	0	0.0%	0	0.0%
Detail Service From Date	0	0.0%	0	0.0%	0	0.0%
Detail Service To Date	0	0.0%	0	0.0%	0	0.0%
Billing Provider NPI	0	0.0%	17,643	0.1%	0	0.0%
Rendering Provider NPI	0	0.0%	238	<0.1%	10,610,100	62.3%
Referring Provider NPI	0	0.0%	28	<0.1%	13,923,820	81.7%
Rendering Provider Taxonomy Code	1	<0.1%	4	<0.1%	10,502,760	61.7%
Primary Diagnosis Code	0	0.0%	0	0.0%	0	0.0%
Secondary Diagnosis Codes	3	<0.1%	0	0.0%	12,218,352	71.7%
CPT/HCPCS Code	0	0.0%	0	0.0%	0	0.0%
CPT/HCPCS Code Modifiers	0	0.0%	0	0.0%	4,568,065	26.8%
Service Units	0	0.0%	0	0.0%	0	0.0%
Header Paid Amount	0	0.0%	0	0.0%	0	0.0%
Detail Paid Amount	0	0.0%	0	0.0%	0	0.0%

Note: Lower rates indicate better performance.
[1] Indicates the number of records with values not in DHB's file.
[2] Indicates the number of records with values not in PHPs' files.
[3] Indicates the number of records with missing values in both files.

Table C-3—Data Element Completeness: Institutional Encounters

Key Data Element	Element Omission (Only Populated in PHP Data)		Element Surplus (Only Populated in DHB Data)		Element Missing (Not Populated in Either)	
	Number of Records[1]	Rate	Number of Records[2]	Rate	Number of Records[3]	Rate
Number of Matched Records: 3,171,497						
Beneficiary ID	0	0.0%	0	0.0%	0	0.0%
Header Service From Date	0	0.0%	0	0.0%	0	0.0%
Header Service To Date	0	0.0%	0	0.0%	0	0.0%

Key Data Element	Element Omission (Only Populated in PHP Data)		Element Surplus (Only Populated in DHB Data)		Element Missing (Not Populated in Either)	
	Number of Records[1]	Rate	Number of Records[2]	Rate	Number of Records[3]	Rate
Detail Service From Date	0	0.0%	0	0.0%	0	0.0%
Detail Service To Date	0	0.0%	0	0.0%	0	0.0%
Billing Provider NPI	0	0.0%	0	0.0%	0	0.0%
Attending Provider NPI	0	0.0%	0	0.0%	2,850	0.1%
Referring Provider NPI	0	0.0%	0	0.0%	3,050,791	96.2%
Primary Diagnosis Code	0	0.0%	0	0.0%	0	0.0%
Secondary Diagnosis Codes	0	0.0%	0	0.0%	614,225	19.4%
Admission Diagnosis Code	0	0.0%	0	0.0%	3,129,094	98.7%
CPT/HCPCS Code	1	<0.1%	2	<0.1%	142,095	4.5%
CPT/HCPCS Code Modifiers	9	<0.1%	8	<0.1%	2,379,199	75.0%
Service Units	0	0.0%	0	0.0%	0	0.0%
Surgical Procedure Codes	0	0.0%	0	0.0%	3,143,774	99.1%
Revenue Code	0	0.0%	0	0.0%	0	0.0%
DRG	0	0.0%	1	<0.1%	3,129,857	98.7%
Type of Bill Code	0	0.0%	0	0.0%	0	0.0%
Header Paid Amount	0	0.0%	0	0.0%	0	0.0%
Detail Paid Amount	0	0.0%	0	0.0%	0	0.0%

Note: Lower rates indicate better performance.
[1] Indicates the number of records with values not in DHB's file.
[2] Indicates the number of records with values not in PHPs' files.
[3] Indicates the number of records with missing values in both files.

Table C-4—Data Element Completeness: Pharmacy Encounters

Key Data Element	Element Omission (Only Populated in PHP Data)		Element Surplus (Only Populated in DHB Data)		Element Missing (Not Populated in Either)	
	Number of Records[1]	Rate	Number of Records[2]	Rate	Number of Records[3]	Rate
Number of Matched Records: 7,390,036						
Beneficiary ID	0	0.0%	0	0.0%	0	0.0%
Date of Service	0	0.0%	0	0.0%	0	0.0%
Billing Provider NPI	0	0.0%	0	0.0%	0	0.0%
Prescribing Provider NPI	0	0.0%	91	<0.1%	0	0.0%
NDC	0	0.0%	0	0.0%	0	0.0%
Days Supply	0	0.0%	0	0.0%	0	0.0%
Paid Amount	0	0.0%	0	0.0%	0	0.0%

Note: Lower rates indicate better performance.
[1] Indicates the number of records with values not in DHB's file.
[2] Indicates the number of records with values not in PHPs' files.
[3] Indicates the number of records with missing values in both files.

Data Element Accuracy

Data element accuracy is limited to those records that have values present in both data sources. HSAG does not include records in the numerator of the data element present indicator or denominator of data element accuracy if values are missing in at least one data source. The numerator of data element accuracy is the number of records with the same non-missing values for a given data element. Higher data element accuracy rates indicate that the values populated for a data element in DHB's submitted encounter data and PHPs' submitted encounter data are the same and thus more accurate. Therefore, for the accuracy indicator, a higher rate indicates better performance. Encounter data element accuracy results for each encounter type are presented in Table C-5 through Table C-7.

Table C-5—Data Element Accuracy: Professional Encounters

Key Data Element	Number of Records With Values Populated in Both Data Sources	Percent Present	Number of Records With Same Values Populated in Both Data Sources	Percent Accuracy
Beneficiary ID	17,033,105	100%	17,033,025	>99.9%
Detail Service From Date	17,033,105	100%	17,033,105	100%
Detail Service To Date	17,033,105	100%	17,033,105	100%
Billing Provider NPI	17,015,462	99.9%	17,015,462	100%
Rendering Provider NPI	6,422,767	37.7%	6,419,517	99.9%

Key Data Element	Number of Records With Values Populated in Both Data Sources	Percent Present	Number of Records With Same Values Populated in Both Data Sources	Percent Accuracy
Referring Provider NPI	3,109,257	18.3%	3,109,229	>99.9%
Rendering Provider Taxonomy Code	6,530,340	38.3%	6,530,273	>99.9%
Primary Diagnosis Code	17,033,105	100%	17,033,105	100%
Secondary Diagnosis Codes	4,814,750	28.3%	4,753,035	98.7%
CPT/HCPCS Code	17,033,105	100%	17,032,982	>99.9%
CPT/HCPCS Code Modifiers	12,465,040	73.2%	12,465,040	100%
Service Units	17,033,105	100%	16,760,187	98.4%
Header Paid Amount	17,033,105	100%	16,760,173	98.4%
Detail Paid Amount	17,033,105	100%	16,760,177	98.4%

Table C-6—Data Element Accuracy: Institutional Encounters

Key Data Element	Number of Records With Values Populated in Both Data Sources	Percent Present	Number of Records With Same Values Populated in Both Data Sources	Percent Accuracy
Beneficiary ID	3,171,497	100%	3,171,497	100%
Header Service From Date	3,171,497	100%	3,171,495	>99.9%
Header Service To Date	3,171,497	100%	3,171,492	>99.9%
Detail Service From Date	3,171,497	100%	3,171,490	>99.9%
Detail Service To Date	3,171,497	100%	3,171,490	>99.9%
Billing Provider NPI	3,171,497	100%	3,171,497	100%
Attending Provider NPI	3,168,647	99.9%	3,168,647	100%
Referring Provider NPI	120,706	3.8%	120,706	100%
Primary Diagnosis Code	3,171,497	100%	3,171,496	>99.9%
Secondary Diagnosis Codes	2,557,272	80.6%	2,557,181	>99.9%
Admission Diagnosis Code	42,403	1.3%	42,403	100%
CPT/HCPCS Code	3,029,399	95.5%	3,029,351	>99.9%
CPT/HCPCS Code Modifiers	792,281	25.0%	792,273	>99.9%

Key Data Element	Number of Records With Values Populated in Both Data Sources	Percent Present	Number of Records With Same Values Populated in Both Data Sources	Percent Accuracy
Service Units	3,171,497	100%	3,171,478	>99.9%
Surgical Procedure Codes	27,723	0.9%	25,088	90.5%
Revenue Code	3,171,497	100%	3,171,471	>99.9%
DRG	41,639	1.3%	41,637	>99.9%
Type of Bill Code	3,171,497	100%	3,166,881	99.9%
Header Paid Amount	3,171,497	100%	3,168,427	99.9%
Detail Paid Amount	3,171,497	100%	3,170,704	>99.9%

Red text indicates rates lower than 95.0 percent.

Table C-7—Data Element Accuracy: Pharmacy Encounters

Key Data Element	Number of Records With Values Populated in Both Data Sources	Percent Present	Number of Records With Same Values Populated in Both Data Sources	Percent Accuracy
Beneficiary ID	7,390,036	100%	7,389,254	>99.9%
Date of Service	7,390,036	100%	7,390,036	100%
Billing Provider NPI	7,390,036	100%	7,387,185	>99.9%
Prescribing Provider NPI	7,389,945	>99.9%	7,389,736	>99.9%
NDC	7,390,036	100%	7,377,604	99.8%
Days Supply	7,390,036	100%	3,535,710	47.8%
Paid Amount	7,390,036	100%	7,390,036	100%

Red text indicates rates lower than 95.0 percent.

All-Element Accuracy

All-element accuracy rates are calculated for records present in both data sources with the same values (missing or non-missing) for **all** key data elements relevant to each encounter type. The denominator for the all-element accuracy rate is defined differently from the denominator for the element accuracy rate since it includes data elements, even if values were missing in one or both data sources. If any of the data elements were counted toward element omission, element surplus, or an inaccurate value match, then the record would not be included in the all-element accuracy numerator. The all-element accuracy rate results are not derived from the accuracy rate of each data element. Therefore, **higher rates indicate better performance.** The all-element accuracy results for each encounter type are presented in Table C-8.

Table C-8—All-Element Accuracy by Encounter Type

Encounter Type	Number of Records in Both Data Sources	Number of Records With Same Values Populated in Both Data Sources	All-Element Accuracy Rate
Professional Encounters	17,033,105	16,681,911	97.9%
Institutional Encounters	3,171,497	3,163,857	99.8%
Pharmacy Encounters	7,390,036	3,527,728	47.7%

Note: Higher rates indicate better performance.

Overall Encounter Accuracy

HSAG assessed overall encounter accuracy based on the unique claim number of the encounter, evaluating the encounter contents across all claim lines, regardless of line number. This analysis compared each PHP's data file to the respective DHB data file and vice versa (e.g., **Healthy Blue**'s professional encounters were compared to DHB's professional encounters and DHB's professional encounters were compared to **Healthy Blue**'s professional encounters). When the two data files were compared to each other, one data file was treated as the primary file and the other data file was treated as the secondary file. Using this method, HSAG took a multi-faceted approach to determine the percentage of claim numbers identified in the primary file that were not identified in the secondary file, were partially identified in the secondary file, or completely matched the secondary file.

First, HSAG identified the number of unique claim numbers in the primary file. If a claim number could not be identified in the secondary file, the claim number was considered a **No Match.** For the claim numbers identified in the secondary file, HSAG further assessed whether all key data elements contained in the primary file, regardless of claim line number, could be identified in the secondary file. If all detail lines and all key data elements associated with the claim number in the primary file were identified in the secondary file, the claim number was considered a **Match**. However, if the secondary file had a different number of detail lines than the primary file, or if one or more of the detail lines had data elements that could not be identified in the secondary file, the claim number was considered a **Partial Match**.

Since the analysis was repeated by swapping the primary and secondary data files, claim numbers could be identified as a match in one analysis and a partial match in the reversed analysis. For example, if a claim number from the primary file contained three detail lines and the secondary file for that same claim number only contained two detail lines with matching key data elements, then the claim number would be reported as a partial match for the primary file since not all detail lines and key data elements could be identified in the secondary file. However, when reversing the analysis, the claim number would be considered a match if all the information contained in the two detail lines could be identified in the other data file. Therefore, all results displayed are based on the number of claims in the primary file, and **a higher match rate indicates better performance**. Table C-9 displays the overall encounter accuracy rates by encounter type.

Table C-9—Overall Encounter Accuracy by Encounter Type

Encounter Type	DHB to PHP			PHP to DHB		
	Match	Partial Match	No Match	Match	Partial Match	No Match
Professional Encounters	98.3%	1.4%	0.3%	97.5%	1.4%	1.1%
Institutional Encounters	99.4%	0.5%	0.1%	98.4%	0.5%	1.1%
Pharmacy Encounters	47.7%	52.2%	0.1%	47.3%	51.8%	1.0%

Note: The sum of Match, Partial Match, and No Match rates may not add up to 100 percent due to rounding.

Conclusions

Table C-10 summarizes findings from the comparative analysis.

Table C-10—Comparative Analysis Key Findings

Analysis	Key Findings
Encounter Data Record Omission and Record Surplus	**Professional Encounters** • Record omission and surplus rates were below 5 percent, with 1.7 percent of the PHP-submitted records not identified in DHB data (i.e., record omission), and 0.3 percent of the DHB-submitted records not identified in the PHP's data (i.e., record surplus). **Institutional Encounters** • Record omission and surplus rates were below 5 percent, with 1.4 percent of the PHP-submitted records not identified in DHB data (i.e., record omission), and 0.1 percent of the DHB-submitted records not identified in the PHP's data (i.e., record surplus). **Pharmacy Encounters** Record omission and surplus rates were below 5 percent, with 1.0 percent of the PHP-submitted records not identified in DHB data (i.e., record omission), and 0.1 percent of the DHB-submitted records not identified in the PHP's data (i.e., record surplus).
Data Element Completeness	**Professional Encounters** • All element omission and element surplus rates were 0.1 percent or less. **Institutional Encounters** • All element omission and surplus rates were <0.1 percent. **Pharmacy Encounters** • All element omission and surplus rates were <0.1 percent.

Analysis	Key Findings
Data Element Accuracy	**Professional Encounters** • All data elements had an element accuracy rate of at least 98.4 percent. **Institutional Encounters** • ***Surgical Procedure Codes:*** For all records that had mismatching *Surgical Procedure Codes* between the **Healthy Blue**-submitted and DHB-submitted data, the **Healthy Blue**-submitted data always had a greater number of surgical procedure codes submitted when compared to the DHB-submitted data. This resulted in a low element accuracy rate of 90.5 percent. **Pharmacy Encounters** • ***Days Supply*:** Discrepant records in DHB's data contained a negative *Days Supply* value, whereas the *Days Supply* value in the PHP-submitted data was positive. All of these records were marked as void in DHB's data. This resulted in a 47.8 percent accuracy rate.
All-Element Accuracy	**Professional Encounters** • The all-element accuracy rate was high at 97.9 percent, indicating almost all elements in the matched records had the same values. **Institutional Encounters** • The all-element accuracy rate for **Healthy Blue** was 99.8 percent, suggesting that for almost all the records present in both DHB-submitted and **Healthy Blue**-submitted data, all key data elements were present and had the same values. **Pharmacy Encounters** • The all-element accuracy rate was 47.7 percent, which could be attributed to the *Days Supply* accuracy rate (47.8 percent).
Overall Encounter Accuracy	**Professional Encounters** • The match rates when comparing the DHB-submitted data to the PHP-submitted data and vice versa were high at 98.3 percent and 97.5 percent, respectively. This indicates nearly all records could be identified in both data sources and contained the same data element values. **Institutional Encounters** • The sums of the match and partial match rates when comparing the DHB-submitted data to the PHP-submitted data and vice versa were 99.9 percent and 98.9 percent respectively. This suggests that almost all the claim numbers that were in the DHB-submitted data were found in the PHP-submitted data and vice versa.

Analysis	Key Findings
	Pharmacy Encounters • When comparing the DHB-submitted data to the PHP-submitted data and vice versa, match, partial match, and no match rates were similar. The match and partial match rates could be attributed to the *Days Supply* accuracy rate, while the no match rates could be attributed to the record omission and surplus rates.

Based on the comparative analysis results for **Healthy Blue**, HSAG identified the following areas of strength and opportunities for improvement.

Strengths

Strength #1: Record omission rates and record surplus rates for all encounter types were below 5.0 percent. This indicates that encounters in both the DHB-submitted and PHP-submitted data could be identified in both data sources.

Strength #2: Element surplus rates and element omission rates for all encounter types were less than 5.0 percent. This indicates that records which could be matched between the DHB-submitted and PHP-submitted data were largely complete.

Strength #3: All professional encounter data elements, all but one institutional encounter data element, and all but one pharmacy encounter data element had an accuracy rate greater than 95.0 percent. This indicates that records which could be matched between the DHB-submitted and PHP-submitted data largely contained the same values.

Opportunities for Improvement

Weakness #1: Although matched records largely contained similar values between the DHB-submitted and PHP-submitted data, **Healthy Blue** should ensure the following data elements have accurate values:

- Institutional encounters: *Surgical Procedure Codes*.
- Pharmacy encounters: *Days Supply*.

Appendix D. Results for UnitedHealthcare of North Carolina, Inc.

This section provides the comparative analysis results for **UnitedHealthcare** for the SFY 2023–2024 EDV activity.

Methodology

The goal of the comparative analysis was to evaluate the extent to which encounters the PHPs submitted to DHB, directly or indirectly via their subcontractors, were complete and accurate based on corresponding information stored in the PHPs' claims data systems. The encounter data were considered complete if the data reflected all services rendered to beneficiaries, and all data within the PHPs' encounter data systems had been submitted and successfully imported into DHB's EPS. For encounter data to be considered accurate, the data that the PHPs maintain should represent the actual services rendered; when they were rendered (i.e., the date of service); to whom they were rendered (i.e., the beneficiary); by whom they were rendered (i.e., the provider); and, if a payment was rendered in connection to the service, how much was paid. HSAG performed the comparative analysis on encounter data from both DHB and the PHPs with dates of service between **July 1, 2022**, and **June 30, 2023**. To ensure that the extracted data from both sources represented the same universe of encounters, the data targeted professional, institutional, and pharmacy encounters that the PHPs submitted to DHB on or before December 31, 2023, with a paid/adjudication date on or before November 30, 2023. These anchor dates allowed enough time for the encounters to be submitted, processed, and available for evaluation in DHB's EPS. The comparative analysis involved three key steps:

- HSAG developed a data requirements document that defined the data submission requirements for the PHPs' encounter data. HSAG hosted a technical assistance meeting with the PHPs to review the data requirements document.
- HSAG conducted file reviews of submitted encounters from DHB and the PHPs.
- HSAG conducted a comparative analysis between DHB's encounter data and the PHPs' encounter data.

Comparative Analysis Results

This section presents findings from comparative analysis results of the professional, institutional, and pharmacy encounter data maintained by DHB and the PHP.

Encounter Data Record Omission and Record Surplus

Encounter record omission and surplus rates are summary metrics designed to evaluate discrepancies between two data sources—i.e., primary and secondary. The primary data source refers to data maintained by an organization (e.g., a PHP) responsible for sending data to another organization (e.g.,

DHB). The secondary data source refers to data acquired by the receiving organization. By comparing these two data sources (i.e., primary and secondary), the analysis yields the percentage of records contained in one source and not the other, and vice versa. Therefore, encounter record omission refers to the percentage of encounters reported in the primary data source but missing from the secondary data source. For this analysis, the omission rate identifies the percentage of encounters reported by a PHP that were missing from DHB's data. Similarly, the encounter record surplus rate refers to the percentage of encounters reported in the secondary data source (DHB) that were missing from the primary data source (the PHP).

Table D-1 illustrates the percentage of records present in the PHP-submitted files that were not found in DHB's files (record omission) and the percentage of records present in DHB's files but not present in the PHP-submitted files (record surplus). **Lower rates indicate better performance for both record omission and record surplus.**

Table D-1—Record Omission and Surplus Rates by Encounter Type

Encounter Type	Record Omission *(PHP Records Not Found in DHB Data)*			Record Surplus *(DHB Records Not Found in PHP Data)*		
	Denominator	Numerator	Rate	Denominator	Numerator	Rate
Professional Encounters	16,765,363	363,878	2.2%	18,860,952	2,459,467	13.0%
Institutional Encounters	2,560,630	14,853	0.6%	2,613,452	67,675	2.6%
Pharmacy Encounters	3,462,085	79,789	2.3%	3,457,141	74,845	2.2%

Note: Lower rates indicate better performance.
Red text indicates rates greater than 5.0 percent.

Data Element Completeness

HSAG based data element completeness measures on the number of records that matched in both DHB's submitted data and the PHPs' submitted data. HSAG evaluated element-level completeness based on element omission and element surplus rates. The element omission rate represents the percentage of records with values present in the PHPs' submitted data but not in DHB's submitted data. Similarly, the element surplus rate reports the percentage of records with values present in DHB's submitted data but not in the PHPs' submitted data. For the element omission and surplus indicators, lower rates indicate better performance. However, for the element missing values and element present values indicators, lower or higher rates do not indicate better or worse performance. Encounter data element omission and surplus results, as well as percent missing and present indicators, for each encounter type are presented in Table D-2 through Table D-4.

Table D-2—Data Element Completeness: Professional Encounters

Key Data Element	Element Omission (Only Populated in PHP Data)		Element Surplus (Only Populated in DHB Data)		Element Missing (Not Populated in Either)	
	Number of Records[1]	Rate	Number of Records[2]	Rate	Number of Records[3]	Rate
Number of Matched Records: 16,401,485						
Beneficiary ID	0	0.0%	0	0.0%	0	0.0%
Detail Service From Date	0	0.0%	0	0.0%	0	0.0%
Detail Service To Date	0	0.0%	0	0.0%	0	0.0%
Billing Provider NPI	0	0.0%	15,227	0.1%	0	0.0%
Rendering Provider NPI	277,711	1.7%	23,947	0.1%	11,765,562	71.7%
Referring Provider NPI	0	0.0%	7,476	<0.1%	14,201,490	86.6%
Rendering Provider Taxonomy Code	491,958	3.0%	23,952	0.1%	11,502,648	70.1%
Primary Diagnosis Code	0	0.0%	0	0.0%	0	0.0%
Secondary Diagnosis Codes	2	<0.1%	0	0.0%	13,142,400	80.1%
CPT/HCPCS Code	0	0.0%	0	0.0%	0	0.0%
CPT/HCPCS Code Modifiers	1	<0.1%	2	<0.1%	2,826,144	17.2%
Service Units	0	0.0%	0	0.0%	0	0.0%
Header Paid Amount	0	0.0%	0	0.0%	0	0.0%
Detail Paid Amount	0	0.0%	0	0.0%	0	0.0%

Note: Lower rates indicate better performance.
[1] Indicates the number of records with values not in DHB's file.
[2] Indicates the number of records with values not in PHPs' files.
[3] Indicates the number of records with missing values in both files.

Table D-3—Data Element Completeness: Institutional Encounters

Key Data Element	Element Omission (Only Populated in PHP Data)		Element Surplus (Only Populated in DHB Data)		Element Missing (Not Populated in Either)	
	Number of Records[1]	Rate	Number of Records[2]	Rate	Number of Records[3]	Rate
Number of Matched Records: 2,545,777						
Beneficiary ID	0	0.0%	0	0.0%	0	0.0%
Header Service From Date	0	0.0%	0	0.0%	0	0.0%

Key Data Element	Element Omission (Only Populated in PHP Data)		Element Surplus (Only Populated in DHB Data)		Element Missing (Not Populated in Either)	
	Number of Records[1]	Rate	Number of Records[2]	Rate	Number of Records[3]	Rate
Header Service To Date	0	0.0%	0	0.0%	0	0.0%
Detail Service From Date	390,657	15.3%	0	0.0%	0	0.0%
Detail Service To Date	390,657	15.3%	0	0.0%	0	0.0%
Billing Provider NPI	0	0.0%	0	0.0%	0	0.0%
Attending Provider NPI	48	<0.1%	0	0.0%	617	<0.1%
Referring Provider NPI	2,200	0.1%	0	0.0%	2,455,978	96.5%
Primary Diagnosis Code	0	0.0%	0	0.0%	0	0.0%
Secondary Diagnosis Codes	0	0.0%	0	0.0%	423,925	16.7%
Admission Diagnosis Code	4,615	0.2%	353	<0.1%	2,150,593	84.5%
CPT/HCPCS Code	0	0.0%	8	<0.1%	457,010	18.0%
CPT/HCPCS Code Modifiers	0	0.0%	18	<0.1%	2,004,409	78.7%
Service Units	0	0.0%	0	0.0%	0	0.0%
Surgical Procedure Codes	0	0.0%	0	0.0%	2,255,725	88.6%
Revenue Code	0	0.0%	0	0.0%	0	0.0%
DRG	0	0.0%	0	0.0%	2,171,482	85.3%
Type of Bill Code	0	0.0%	0	0.0%	0	0.0%
Header Paid Amount	0	0.0%	0	0.0%	0	0.0%
Detail Paid Amount	0	0.0%	0	0.0%	0	0.0%

Note: Lower rates indicate better performance.
[1] Indicates the number of records with values not in DHB's file.
[2] Indicates the number of records with values not in PHPs' files.
[3] Indicates the number of records with missing values in both files.
Red text indicates rates greater than 5.0 percent.

Table D-4—Data Element Completeness: Pharmacy Encounters

Key Data Element	Element Omission (Only Populated in PHP Data)		Element Surplus (Only Populated in DHB Data)		Element Missing (Not Populated in Either)	
	Number of Records[1]	Rate	Number of Records[2]	Rate	Number of Records[3]	Rate
Number of Matched Records: 3,382,296						
Beneficiary ID	0	0.0%	0	0.0%	0	0.0%
Date of Service	0	0.0%	0	0.0%	0	0.0%
Billing Provider NPI	0	0.0%	0	0.0%	0	0.0%
Prescribing Provider NPI	0	0.0%	0	0.0%	0	0.0%
NDC	0	0.0%	0	0.0%	0	0.0%
Days Supply	0	0.0%	0	0.0%	0	0.0%
Paid Amount	0	0.0%	0	0.0%	0	0.0%

Note: Lower rates indicate better performance.
[1] Indicates the number of records with values not in DHB's file.
[2] Indicates the number of records with values not in PHPs' files.
[3] Indicates the number of records with missing values in both files.

Data Element Accuracy

Data element accuracy is limited to those records that have values present in both data sources. HSAG does not include records in the numerator of the data element present indicator or denominator of data element accuracy if values are missing in at least one data source. The numerator of data element accuracy is the number of records with the same non-missing values for a given data element. Higher data element accuracy rates indicate that the values populated for a data element in DHB's submitted encounter data and PHPs' submitted encounter data are the same and thus more accurate. Therefore, for the accuracy indicator, a higher rate indicates better performance. Encounter data element accuracy results for each encounter type are presented in Table D-5 through Table D-7.

Table D-5—Data Element Accuracy: Professional Encounters

Key Data Element	Number of Records With Values Populated in Both Data Sources	Percent Present	Number of Records With Same Values Populated in Both Data Sources	Percent Accuracy
Beneficiary ID	16,401,485	100%	16,401,246	>99.9%
Detail Service From Date	16,401,485	100%	16,401,485	100%
Detail Service To Date	16,401,485	100%	16,401,485	100%
Billing Provider NPI	16,386,258	99.9%	16,386,197	>99.9%
Rendering Provider NPI	4,334,265	26.4%	4,331,581	99.9%

Key Data Element	Number of Records With Values Populated in Both Data Sources	Percent Present	Number of Records With Same Values Populated in Both Data Sources	Percent Accuracy
Referring Provider NPI	2,192,519	13.4%	2,191,314	99.9%
Rendering Provider Taxonomy Code	4,382,927	26.7%	4,382,119	>99.9%
Primary Diagnosis Code	16,401,485	100%	16,401,485	100%
Secondary Diagnosis Codes	3,259,083	19.9%	3,217,014	98.7%
CPT/HCPCS Code	16,401,485	100%	16,384,948	99.9%
CPT/HCPCS Code Modifiers	13,575,338	82.8%	13,558,724	99.9%
Service Units	16,401,485	100%	15,868,758	96.8%
Header Paid Amount	16,401,485	100%	15,837,878	96.6%
Detail Paid Amount	16,401,485	100%	15,849,500	96.6%

Table D-6—Data Element Accuracy: Institutional Encounters

Key Data Element	Number of Records With Values Populated in Both Data Sources	Percent Present	Number of Records With Same Values Populated in Both Data Sources	Percent Accuracy
Beneficiary ID	2,545,777	100%	2,545,760	>99.9%
Header Service From Date	2,545,777	100%	2,545,777	100%
Header Service To Date	2,545,777	100%	2,545,777	100%
Detail Service From Date	2,155,120	84.7%	2,155,115	>99.9%
Detail Service To Date	2,155,120	84.7%	2,155,115	>99.9%
Billing Provider NPI	2,545,777	100%	2,545,777	100%
Attending Provider NPI	2,545,112	>99.9%	2,545,112	100%
Referring Provider NPI	87,599	3.4%	87,599	100%
Primary Diagnosis Code	2,545,777	100%	2,545,777	100%
Secondary Diagnosis Codes	2,121,852	83.3%	2,120,563	99.9%
Admission Diagnosis Code	390,216	15.3%	390,216	100%
CPT/HCPCS Code	2,088,759	82.0%	2,088,709	>99.9%
CPT/HCPCS Code Modifiers	541,350	21.3%	541,340	>99.9%

Key Data Element	Number of Records With Values Populated in Both Data Sources	Percent Present	Number of Records With Same Values Populated in Both Data Sources	Percent Accuracy
Service Units	2,545,777	100%	2,134,460	83.8%
Surgical Procedure Codes	290,052	11.4%	267,163	92.1%
Revenue Code	2,545,777	100%	2,545,731	>99.9%
DRG	374,295	14.7%	374,295	100%
Type of Bill Code	2,545,777	100%	2,025,840	79.6%
Header Paid Amount	2,545,777	100%	2,511,925	98.7%
Detail Paid Amount	2,545,777	100%	2,520,294	99.0%

Red text indicates rates lower than 95.0 percent.

Table D-7—Data Element Accuracy: Pharmacy Encounters

Key Data Element	Number of Records With Values Populated in Both Data Sources	Percent Present	Number of Records With Same Values Populated in Both Data Sources	Percent Accuracy
Beneficiary ID	3,382,296	100%	3,382,296	100%
Date of Service	3,382,296	100%	3,382,296	100%
Billing Provider NPI	3,382,296	100%	3,382,296	100%
Prescribing Provider NPI	3,382,296	100%	3,382,296	100%
NDC	3,382,296	100%	3,378,614	99.9%
Days Supply	3,382,296	100%	2,369,115	70.0%
Paid Amount	3,382,296	100%	2,366,295	70.0%

Red text indicates rates lower than 95.0 percent.

All-Element Accuracy

All-element accuracy rates are calculated for records present in both data sources with the same values (missing or non-missing) for **all** key data elements relevant to each encounter type. The denominator for the all-element accuracy rate is defined differently from the denominator for the element accuracy rate since it includes data elements, even if values were missing in one or both data sources. If any of the data elements were counted toward element omission, element surplus, or an inaccurate value match, then the record would not be included in the all-element accuracy numerator. The all-element accuracy rate results are not derived from the accuracy rate of each data element. Therefore, **higher rates indicate better performance.** The all-element accuracy results for each encounter type are presented in Table D-8.

Table D-8—All-Element Accuracy by Encounter Type

Encounter Type	Number of Records in Both Data Sources	Number of Records With Same Values Populated in Both Data Sources	All-Element Accuracy Rate
Professional Encounters	16,401,485	15,270,162	93.1%
Institutional Encounters	2,545,777	1,663,618	65.3%
Pharmacy Encounters	3,382,296	2,363,136	69.9%

Note: Higher rates indicate better performance.

Overall Encounter Accuracy

HSAG assessed overall encounter accuracy based on the unique claim number of the encounter, evaluating the encounter contents across all claim lines, regardless of line number. This analysis compared each PHP's data file to the respective DHB data file and vice versa (e.g., **UnitedHealthcare**'s professional encounters were compared to DHB's professional encounters and DHB's professional encounters were compared to **UnitedHealthcare**'s professional encounters). When the two data files were compared to each other, one data file was treated as the primary file and the other data file was treated as the secondary file. Using this method, HSAG took a multi-faceted approach to determine the percentage of claim numbers identified in the primary file that were not identified in the secondary file, were partially identified in the secondary file, or completely matched the secondary file.

First, HSAG identified the number of unique claim numbers in the primary file. If a claim number could not be identified in the secondary file, the claim number was considered a **No Match.** For the claim numbers identified in the secondary file, HSAG further assessed whether all key data elements contained in the primary file, regardless of claim line number, could be identified in the secondary file. If all detail lines and all key data elements associated with the claim number in the primary file were identified in the secondary file, the claim number was considered a **Match**. However, if the secondary file had a different number of detail lines than the primary file, or if one or more of the detail lines had data elements that could not be identified in the secondary file, the claim number was considered a **Partial Match**.

Since the analysis was repeated by swapping the primary and secondary data files, claim numbers could be identified as a match in one analysis and a partial match in the reversed analysis. For example, if a claim number from the primary file contained three detail lines and the secondary file for that same claim number only contained two detail lines with matching key data elements, then the claim number would be reported as a partial match for the primary file since not all detail lines and key data elements could be identified in the secondary file. However, when reversing the analysis, the claim number would be considered a match if all the information contained in the two detail lines could be identified in the other data file. Therefore, all results displayed are based on the number of claims in the primary file, and **a higher match rate indicates better performance**. Table D-9 displays the overall encounter accuracy rates by encounter type.

Table D-9—Overall Encounter Accuracy by Encounter Type

	DHB to PHP			PHP to DHB		
Encounter Type	Match	Partial Match	No Match	Match	Partial Match	No Match
Professional Encounters	80.1%	5.4%	14.6%	91.4%	6.1%	2.4%
Institutional Encounters	70.1%	27.5%	2.4%	71.5%	28.1%	0.4%
Pharmacy Encounters	68.4%	29.5%	2.2%	68.3%	29.4%	2.3%

Note: The sum of Match, Partial Match, and No Match rates may not add up to 100 percent due to rounding.

Conclusions

Table D-10 summarizes findings from the comparative analysis.

Table D-10—Comparative Analysis Key Findings

Analysis	Key Findings
Encounter Data Record Omission and Record Surplus	**Professional Encounters** • The record omission rate was below 5 percent, with 2.2 percent of the PHP-submitted records not identified in DHB data. • The record surplus rate was high at a rate of 13.0 percent, indicating 13.0 percent of records identified in the DHB-submitted data could not be identified in the PHP-submitted data. When stratifying the results based on claim status, over 98.0 percent of the claims found only in the DHB-submitted data were marked as void. Interestingly, nearly all of these voided records were also value-based payment records. Excluding the DHB surplus voided records from the analysis would decrease **UnitedHealthcare**'s surplus rate to 0.2 percent. **Institutional Encounters** • Record omission and surplus rates were below 5 percent, with 0.6 percent of the PHP-submitted records not identified in DHB data (i.e., record omission), and 2.6 percent of the DHB-submitted records not identified in the PHP's data (i.e., record surplus). **Pharmacy Encounters** • Record omission and surplus rates were below 5 percent, with 2.3 percent of the PHP-submitted records not identified in DHB data (i.e., record omission), and 2.2 percent of the DHB-submitted records not identified in the PHP's data (i.e., record surplus).

Analysis	Key Findings
Data Element Completeness	**Professional Encounters** • All element omission rates were 3.0 percent or less, and element surplus rates were 0.1 percent or less. **Institutional Encounters** • All element omission and surplus rates were less than or equal to 0.2 percent, except for the *Detail Service From Date* and *Detail Service To Date* data elements, which each had an element omission rate of 15.3 percent. For most of these records, while the DHB-submitted data had no values populated, the **UnitedHealthcare**-submitted data had the same values for the *Detail Service From Date* and *Detail Service To Date* as the *Header Service From Date* and the *Header Service To Date*, respectively. **Pharmacy Encounters** • All element omission and surplus rates were 0.0 percent.
Data Element Accuracy	**Professional Encounters** • All data elements had an element accuracy rate of at least 96.6 percent. **Institutional Encounters** • ***Service Units:*** For the matched records when the values differed between the **UnitedHealthcare**-submitted and DHB-submitted data, 92.2 percent of the **UnitedHealthcare**-submitted data had a zero value while the DHB-submitted data contained non-zero values. • ***Surgical Procedure Codes:*** For all records that had mismatching *Surgical Procedure Codes* between the **UnitedHealthcare**-submitted and DHB-submitted data, the **UnitedHealthcare**-submitted data always had a greater number of surgical procedure codes submitted when compared to the DHB-submitted data. This resulted in a low element accuracy rate of 92.1 percent. • ***Type of Bill Code:*** For nearly all records that had mismatching *Type of Bill Code* values, the value varied in the third digit between the **UnitedHealthcare**-submitted and DHB-submitted data. This resulted in a low element accuracy rate of 79.6 percent. **Pharmacy Encounters** • ***Days Supply*:** Discrepant records in DHB's data contained a negative *Days Supply* value, whereas the *Days Supply* value in the PHP-submitted data was positive. All of these records were marked as void in DHB's data. This resulted in a 70.0 percent accuracy rate. • ***Paid Amount*:** Discrepant records in DHB's data contained a negative *Paid Amount* value, whereas the *Paid Amount* value in the PHP-submitted data was positive. All of these records were marked as void in DHB's data. This resulted in a 70.0 percent accuracy rate.

Analysis	Key Findings
All-Element Accuracy	**Professional Encounters** • While no elements had an omission or surplus rate over 5.0 percent, minor discrepancies collectively contributed to the moderately low all-element accuracy rate of 93.1 percent. These discrepancies include the element omission rate for *Rendering Provider Taxonomy Code* (3.0 percent) and the element accuracy rates for *Service Units*, *Header Paid Amount*, and *Detail Paid Amount* all being below 97.0 percent. **Institutional Encounters** • The all-element accuracy rate for **UnitedHealthcare** was 65.3 percent, which can be ascribed to high element omission rates for *Detail Service To Date* and *Detail Service From Date* (both 15.3 percent) as well as low data element accuracy rates for *Service Units* (83.8 percent), *Surgical Procedure Codes* (92.1 percent), and *Type of Bill Code* (79.6 percent). **Pharmacy Encounters** • The all-element accuracy rate was 69.9 percent, which could be attributed to the *Days Supply* and *Paid Amount* accuracy rates (70.0 percent each).
Overall Encounter Accuracy	**Professional Encounters** • **UnitedHealthcare**'s low match rate when comparing the DHB-submitted data to the PHP-submitted data (80.1 percent) and high no match rate (14.6 percent) was related to the high record surplus rate of 13.0 percent. **Institutional Encounters** • The sums of the match and partial match rates when comparing the DHB-submitted data to the PHP-submitted data and vice versa were high at 97.6 percent and 99.6 percent, respectively. This suggests that almost all the claim numbers that were in the DHB-submitted data were found in PHP-submitted data and vice versa. **Pharmacy Encounters** • When comparing the DHB-submitted data to the PHP-submitted data and vice versa, match, partial match, and no match rates were similar. The match and partial match rates could be attributed to the *Days Supply* and *Paid Amount* accuracy rates, while the no match rates could be attributed to the record omission and surplus rates.

Based on the comparative analysis results for **UnitedHealthcare**, HSAG identified the following areas of strength and opportunities for improvement.

Strengths

Strength #1: Record surplus rates for institutional and pharmacy encounter types, along with record omission rates for all encounter types were below 5.0 percent. This indicates that encounters in both the DHB-submitted and PHP-submitted data could largely be identified in both data sources.

Strength #2: All professional encounter element omission and surplus rates, all but two institutional encounter element omission and all element surplus rates, and all pharmacy element omission and surplus rates were less than 5.0 percent. This indicates that records which could be matched between the DHB-submitted and PHP-submitted data were largely complete.

Strength #3: All professional encounter data elements, all but three institutional encounter data elements, and all but two pharmacy encounter data elements had an accuracy rate greater than 95.0 percent. This indicates that records which could be matched between the DHB-submitted and PHP-submitted data largely contained the same values.

Opportunities for Improvement

Weakness #1: The professional encounter record surplus rate was high at 13.0 percent. This was due to voided claims in the DHB-submitted data that were not identified in the PHP-submitted data. **UnitedHealthcare** should ensure records are submitted completely.

Weakness #2: Although the encounter element omission rates were low for most data elements between the DHB-submitted and PHP-submitted data, **UnitedHealthcare** should ensure the following data elements are submitted completely:

- Institutional encounters: *Detail Service From Date* and *Detail Service To Date*.

Weakness #3: Although matched records largely contained similar values between the DHB-submitted and PHP-submitted data, **UnitedHealthcare** should ensure the following data elements have accurate values:

- Institutional encounters: *Service Units*, *Surgical Procedure Codes*, and *Type of Bill Code*.
- Pharmacy encounters: *Days Supply* and *Paid Amount*.

Appendix E. Results for WellCare of North Carolina, Inc.

This section provides the comparative analysis results for **WellCare** for the SFY 2023–2024 EDV activity.

Methodology

The goal of the comparative analysis was to evaluate the extent to which encounters the PHPs submitted to DHB, directly or indirectly via their subcontractors, were complete and accurate based on corresponding information stored in the PHPs' claims data systems. The encounter data were considered complete if the data reflected all services rendered to beneficiaries, and all data within the PHPs' encounter data systems had been submitted and successfully imported into DHB's EPS. For encounter data to be considered accurate, the data that the PHPs maintain should represent the actual services rendered; when they were rendered (i.e., the date of service); to whom they were rendered (i.e., the beneficiary); by whom they were rendered (i.e., the provider); and, if a payment was rendered in connection to the service, how much was paid. HSAG performed the comparative analysis on encounter data from both DHB and the PHPs with dates of service between **July 1, 2022**, and **June 30, 2023**. To ensure that the extracted data from both sources represented the same universe of encounters, the data targeted professional, institutional, and pharmacy encounters that the PHPs submitted to DHB on or before December 31, 2023, with a paid/adjudication date on or before November 30, 2023. These anchor dates allowed enough time for the encounters to be submitted, processed, and available for evaluation in DHB's EPS. The comparative analysis involved three key steps:

- HSAG developed a data requirements document that defined the data submission requirements for the PHPs' encounter data. HSAG hosted a technical assistance meeting with the PHPs to review the data requirements document.
- HSAG conducted file reviews of submitted encounters from DHB and the PHPs.
- HSAG conducted a comparative analysis between DHB's encounter data and the PHPs' encounter data.

Comparative Analysis Results

This section presents findings from comparative analysis results of the professional, institutional, and pharmacy encounter data maintained by DHB and the PHP.

Encounter Data Record Omission and Record Surplus

Encounter record omission and surplus rates are summary metrics designed to evaluate discrepancies between two data sources—i.e., primary and secondary. The primary data source refers to data maintained by an organization (e.g., a PHP) responsible for sending data to another organization (e.g.,

DHB). The secondary data source refers to data acquired by the receiving organization. By comparing these two data sources (i.e., primary and secondary), the analysis yields the percentage of records contained in one source and not the other, and vice versa. Therefore, encounter record omission refers to the percentage of encounters reported in the primary data source but missing from the secondary data source. For this analysis, the omission rate identifies the percentage of encounters reported by a PHP that were missing from DHB's data. Similarly, the encounter record surplus rate refers to the percentage of encounters reported in the secondary data source (DHB) that were missing from the primary data source (the PHP).

Table E-1 illustrates the percentage of records present in the PHP-submitted files that were not found in DHB's files (record omission) and the percentage of records present in DHB's files but not present in the PHP-submitted files (record surplus). **Lower rates indicate better performance for both record omission and record surplus.**

Table E-1—Record Omission and Surplus Rates by Encounter Type

Encounter Type	Record Omission *(PHP Records Not Found in DHB Data)*			Record Surplus *(DHB Records Not Found in PHP Data)*		
	Denominator	Numerator	Rate	Denominator	Numerator	Rate
Professional Encounters	17,379,176	11,153	0.1%	17,595,651	227,628	1.3%
Institutional Encounters	2,675,622	10,006	0.4%	2,981,896	316,280	10.6%
Pharmacy Encounters	3,798,105	47,462	1.2%	3,798,952	48,309	1.3%

Note: Lower rates indicate better performance.
Red text indicates rates greater than 5.0 percent.

Data Element Completeness

HSAG based data element completeness measures on the number of records that matched in both DHB's submitted data and the PHPs' submitted data. HSAG evaluated element-level completeness based on element omission and element surplus rates. The element omission rate represents the percentage of records with values present in the PHPs' submitted data but not in DHB's submitted data. Similarly, the element surplus rate reports the percentage of records with values present in DHB's submitted data but not in the PHPs' submitted data. For the element omission and surplus indicators, lower rates indicate better performance. However, for the element missing values and element present values indicators, lower or higher rates do not indicate better or worse performance. Encounter data element omission and surplus results, as well as percent missing and present indicators, for each encounter type are presented in Table E-2 through Table E-4.

Table E-2—Data Element Completeness: Professional Encounters

Key Data Element	Element Omission (Only Populated in PHP Data)		Element Surplus (Only Populated in DHB Data)		Element Missing (Not Populated in Either)	
	Number of Records[1]	Rate	Number of Records[2]	Rate	Number of Records[3]	Rate
Number of Matched Records: 17,368,023						
Beneficiary ID	0	0.0%	0	0.0%	0	0.0%
Detail Service From Date	0	0.0%	0	0.0%	0	0.0%
Detail Service To Date	0	0.0%	0	0.0%	0	0.0%
Billing Provider NPI	0	0.0%	35,153	0.2%	0	0.0%
Rendering Provider NPI	10,750	0.1%	5,443	<0.1%	12,069,472	69.5%
Referring Provider NPI	1,078	<0.1%	41	<0.1%	14,917,321	85.9%
Rendering Provider Taxonomy Code	10,723	0.1%	41,644	0.2%	12,033,381	69.3%
Primary Diagnosis Code	0	0.0%	0	0.0%	0	0.0%
Secondary Diagnosis Codes	0	0.0%	0	0.0%	13,570,323	78.1%
CPT/HCPCS Code	0	0.0%	0	0.0%	0	0.0%
CPT/HCPCS Code Modifiers	0	0.0%	0	0.0%	3,370,889	19.4%
Service Units	0	0.0%	0	0.0%	0	0.0%
Header Paid Amount	0	0.0%	0	0.0%	0	0.0%
Detail Paid Amount	0	0.0%	0	0.0%	0	0.0%

Note: Lower rates indicate better performance.
[1] Indicates the number of records with values not in DHB's file.
[2] Indicates the number of records with values not in PHPs' files.
[3] Indicates the number of records with missing values in both files.

Table E-3—Data Element Completeness: Institutional Encounters

Key Data Element	Element Omission (Only Populated in PHP Data)		Element Surplus (Only Populated in DHB Data)		Element Missing (Not Populated in Either)	
	Number of Records[1]	Rate	Number of Records[2]	Rate	Number of Records[3]	Rate
Number of Matched Records: 2,665,616						
Beneficiary ID	0	0.0%	0	0.0%	0	0.0%
Header Service From Date	0	0.0%	0	0.0%	0	0.0%
Header Service To Date	0	0.0%	0	0.0%	0	0.0%

Key Data Element	Element Omission (Only Populated in PHP Data)		Element Surplus (Only Populated in DHB Data)		Element Missing (Not Populated in Either)	
	Number of Records[1]	Rate	Number of Records[2]	Rate	Number of Records[3]	Rate
Detail Service From Date	0	0.0%	0	0.0%	0	0.0%
Detail Service To Date	0	0.0%	0	0.0%	0	0.0%
Billing Provider NPI	0	0.0%	0	0.0%	0	0.0%
Attending Provider NPI	0	0.0%	0	0.0%	1,129	<0.1%
Referring Provider NPI	0	0.0%	0	0.0%	2,590,763	97.2%
Primary Diagnosis Code	0	0.0%	0	0.0%	0	0.0%
Secondary Diagnosis Codes	455,576	17.1%	0	0.0%	8,893	0.3%
Admission Diagnosis Code	0	0.0%	528	<0.1%	2,314,255	86.8%
CPT/HCPCS Code	0	0.0%	0	0.0%	424,914	15.9%
CPT/HCPCS Code Modifiers	0	0.0%	0	0.0%	2,052,088	77.0%
Service Units	0	0.0%	0	0.0%	0	0.0%
Surgical Procedure Codes	0	0.0%	0	0.0%	2,409,067	90.4%
Revenue Code	0	0.0%	0	0.0%	0	0.0%
DRG	0	0.0%	0	0.0%	2,316,008	86.9%
Type of Bill Code	0	0.0%	0	0.0%	0	0.0%
Header Paid Amount	0	0.0%	0	0.0%	0	0.0%
Detail Paid Amount	0	0.0%	0	0.0%	0	0.0%

Note: Lower rates indicate better performance.
[1] Indicates the number of records with values not in DHB's file.
[2] Indicates the number of records with values not in PHPs' files.
[3] Indicates the number of records with missing values in both files.
Red text indicates rates greater than 5.0 percent.

Table E-4—Data Element Completeness: Pharmacy Encounters

Key Data Element	Element Omission (Only Populated in PHP Data)		Element Surplus (Only Populated in DHB Data)		Element Missing (Not Populated in Either)	
	Number of Records[1]	Rate	Number of Records[2]	Rate	Number of Records[3]	Rate
Number of Matched Records: 3,750,643						
Beneficiary ID	0	0.0%	0	0.0%	0	0.0%
Date of Service	0	0.0%	0	0.0%	0	0.0%
Billing Provider NPI	0	0.0%	0	0.0%	0	0.0%
Prescribing Provider NPI	0	0.0%	977	<0.1%	0	0.0%
NDC	0	0.0%	0	0.0%	0	0.0%
Days Supply	0	0.0%	0	0.0%	0	0.0%
Paid Amount	0	0.0%	0	0.0%	0	0.0%

Note: Lower rates indicate better performance.
[1] Indicates the number of records with values not in DHB's file.
[2] Indicates the number of records with values not in PHPs' files.
[3] Indicates the number of records with missing values in both files.

Data Element Accuracy

Data element accuracy is limited to those records that have values present in both data sources. HSAG does not include records in the numerator of the data element present indicator or denominator of data element accuracy if values are missing in at least one data source. The numerator of data element accuracy is the number of records with the same non-missing values for a given data element. Higher data element accuracy rates indicate that the values populated for a data element in DHB's submitted encounter data and PHPs' submitted encounter data are the same and thus more accurate. Therefore, for the accuracy indicator, a higher rate indicates better performance. Encounter data element accuracy results for each encounter type are presented in Table E-5 through Table E-7.

Table E-5—Data Element Accuracy: Professional Encounters

Key Data Element	Number of Records With Values Populated in Both Data Sources	Percent Present	Number of Records With Same Values Populated in Both Data Sources	Percent Accuracy
Beneficiary ID	17,368,023	100%	17,368,023	100%
Detail Service From Date	17,368,023	100%	17,367,957	>99.9%
Detail Service To Date	17,368,023	100%	17,367,957	>99.9%
Billing Provider NPI	17,332,870	99.8%	17,332,395	>99.9%
Rendering Provider NPI	5,282,358	30.4%	5,276,777	99.9%

Key Data Element	Number of Records With Values Populated in Both Data Sources	Percent Present	Number of Records With Same Values Populated in Both Data Sources	Percent Accuracy
Referring Provider NPI	2,449,583	14.1%	2,447,852	99.9%
Rendering Provider Taxonomy Code	5,282,275	30.4%	5,278,256	99.9%
Primary Diagnosis Code	17,368,023	100%	17,368,023	100%
Secondary Diagnosis Codes	3,797,700	21.9%	3,745,120	98.6%
CPT/HCPCS Code	17,368,023	100%	17,368,022	>99.9%
CPT/HCPCS Code Modifiers	13,997,134	80.6%	13,984,652	99.9%
Service Units	17,368,023	100%	17,294,440	99.6%
Header Paid Amount	17,368,023	100%	17,304,982	99.6%
Detail Paid Amount	17,368,023	100%	17,311,259	99.7%

Table E-6—Data Element Accuracy: Institutional Encounters

Key Data Element	Number of Records With Values Populated in Both Data Sources	Percent Present	Number of Records With Same Values Populated in Both Data Sources	Percent Accuracy
Beneficiary ID	2,665,616	100%	2,665,616	100%
Header Service From Date	2,665,616	100%	2,661,950	99.9%
Header Service To Date	2,665,616	100%	2,296,347	86.1%
Detail Service From Date	2,665,616	100%	2,665,616	100%
Detail Service To Date	2,665,616	100%	2,665,616	100%
Billing Provider NPI	2,665,616	100%	2,665,616	100%
Attending Provider NPI	2,664,487	>99.9%	2,664,487	100%
Referring Provider NPI	74,853	2.8%	74,832	>99.9%
Primary Diagnosis Code	2,665,616	100%	2,665,616	100%
Secondary Diagnosis Codes	2,201,147	82.6%	354,217	16.1%
Admission Diagnosis Code	350,833	13.2%	336,136	95.8%
CPT/HCPCS Code	2,240,702	84.1%	2,240,702	100%
CPT/HCPCS Code Modifiers	613,528	23.0%	612,528	99.8%

Key Data Element	Number of Records With Values Populated in Both Data Sources	Percent Present	Number of Records With Same Values Populated in Both Data Sources	Percent Accuracy
Service Units	2,665,616	100%	2,648,152	99.3%
Surgical Procedure Codes	256,549	9.6%	238,554	93.0%
Revenue Code	2,665,616	100%	2,665,616	100%
DRG	349,608	13.1%	349,608	100%
Type of Bill Code	2,665,616	100%	2,665,616	100%
Header Paid Amount	2,665,616	100%	2,646,298	99.3%
Detail Paid Amount	2,665,616	100%	2,651,265	99.5%

Red text indicates rates lower than 95.0 percent.

Table E-7—Data Element Accuracy: Pharmacy Encounters

Key Data Element	Number of Records With Values Populated in Both Data Sources	Percent Present	Number of Records With Same Values Populated in Both Data Sources	Percent Accuracy
Beneficiary ID	3,750,643	100%	3,750,643	100%
Date of Service	3,750,643	100%	3,750,643	100%
Billing Provider NPI	3,750,643	100%	3,749,148	>99.9%
Prescribing Provider NPI	3,749,666	>99.9%	3,749,592	>99.9%
NDC	3,750,643	100%	3,743,406	99.8%
Days Supply	3,750,643	100%	2,606,101	69.5%
Paid Amount	3,750,643	100%	3,750,643	100%

Red text indicates rates lower than 95.0 percent.

All-Element Accuracy

All-element accuracy rates are calculated for records present in both data sources with the same values (missing or non-missing) for **all** key data elements relevant to each encounter type. The denominator for the all-element accuracy rate is defined differently from the denominator for the element accuracy rate since it includes data elements, even if values were missing in one or both data sources. If any of the data elements were counted toward element omission, element surplus, or an inaccurate value match, then the record would not be included in the all-element accuracy numerator. The all-element accuracy rate results are not derived from the accuracy rate of each data element. Therefore, **higher rates indicate better performance.** The all-element accuracy results for each encounter type are presented in Table E-8.

Table E-8—All-Element Accuracy by Encounter Type

Encounter Type	Number of Records in Both Data Sources	Number of Records With Same Values Populated in Both Data Sources	All-Element Accuracy Rate
Professional Encounters	17,368,023	17,133,012	98.6%
Institutional Encounters	2,665,616	28,905	1.1%
Pharmacy Encounters	3,750,643	2,599,465	69.3%

Note: Higher rates indicate better performance.

Overall Encounter Accuracy

HSAG assessed overall encounter accuracy based on the unique claim number of the encounter, evaluating the encounter contents across all claim lines, regardless of line number. This analysis compared each PHP's data file to the respective DHB data file and vice versa (e.g., **WellCare**'s professional encounters were compared to DHB's professional encounters and DHB's professional encounters were compared to **WellCare**'s professional encounters). When the two data files were compared to each other, one data file was treated as the primary file and the other data file was treated as the secondary file. Using this method, HSAG took a multi-faceted approach to determine the percentage of claim numbers identified in the primary file that were not identified in the secondary file, were partially identified in the secondary file, or completely matched the secondary file.

First, HSAG identified the number of unique claim numbers in the primary file. If a claim number could not be identified in the secondary file, the claim number was considered a **No Match.** For the claim numbers identified in the secondary file, HSAG further assessed whether all key data elements contained in the primary file, regardless of claim line number, could be identified in the secondary file. If all detail lines and all key data elements associated with the claim number in the primary file were identified in the secondary file, the claim number was considered a **Match**. However, if the secondary file had a different number of detail lines than the primary file, or if one or more of the detail lines had data elements that could not be identified in the secondary file, the claim number was considered a **Partial Match**.

Since the analysis was repeated by swapping the primary and secondary data files, claim numbers could be identified as a match in one analysis and a partial match in the reversed analysis. For example, if a claim number from the primary file contained three detail lines and the secondary file for that same claim number only contained two detail lines with matching key data elements, then the claim number would be reported as a partial match for the primary file since not all detail lines and key data elements could be identified in the secondary file. However, when reversing the analysis, the claim number would be considered a match if all the information contained in the two detail lines could be identified in the other data file. Therefore, all results displayed are based on the number of claims in the primary file, and **a higher match rate indicates better performance**. Table E-9 displays the overall encounter accuracy rates by encounter type.

Table E-9—Overall Encounter Accuracy by Encounter Type

Encounter Type	DHB to PHP			PHP to DHB		
	Match	Partial Match	No Match	Match	Partial Match	No Match
Professional Encounters	98.0%	1.1%	1.0%	98.9%	1.1%	<0.1%
Institutional Encounters	1.0%	93.1%	6.0%	1.0%	98.8%	0.2%
Pharmacy Encounters	68.4%	30.3%	1.3%	68.4%	30.3%	1.2%

Note: The sum of Match, Partial Match, and No Match rates may not add up to 100 percent due to rounding.

Conclusions

Table E-10 summarizes findings from the comparative analysis.

Table E-10—Comparative Analysis Key Findings

Analysis	Key Findings
Encounter Data Record Omission and Record Surplus	**Professional Encounters** • Record omission and surplus rates were below 5 percent, with 0.1 percent of the PHP-submitted records not identified in DHB data (i.e., record omission), and 1.3 percent of the DHB-submitted records not identified in the PHP's data (i.e., record surplus). **Institutional Encounters** • The record omission rate was low at 0.4 percent. • The record surplus rate was high at 10.6 percent, which was related to voided records that were not included in the **WellCare**-submitted data. If voided records were excluded from the analysis, then the surplus rate would drop to 4.4 percent. **Pharmacy Encounters** • Record omission and surplus rates were below 5 percent, with 1.2 percent of the PHP-submitted records not identified in DHB data (i.e., record omission), and 1.3 percent of the DHB-submitted records not identified in the PHP's data (i.e., record surplus).
Data Element Completeness	**Professional Encounters** • All element omission and element surplus rates were 0.2 percent or less. **Institutional Encounters** • All element omission and surplus rates were <0.1 percent, except for *Secondary Diagnosis Codes*, which had an element omission rate of 17.1 percent. In the **WellCare**-submitted data, approximately three quarters of the discrepant records contained the same values for the *Primary Diagnosis Code* and the *Secondary Diagnosis Codes* while there were no values in the DHB-submitted data.

Analysis	Key Findings
	Pharmacy Encounters • All element omission and surplus rates were <0.1 percent.
Data Element Accuracy	**Professional Encounters** • All data elements had an element accuracy rate of at least 98.6 percent. **Institutional Encounters** • ***Header Service To Date*:** The data element accuracy rate was low at 86.1 percent. For the matched records when **WellCare** had mismatching values for *Header Service To Date*, 97.6 percent of the **WellCare**-submitted data had the same values for *Header Service From Date* and *Header Service To Date*, whereas DHB data had different values. • ***Secondary Diagnosis Codes:*** The data element accuracy rate was extremely low at 16.1 percent. For the matched records when **WellCare** had mismatching values, the **WellCare**-submitted data had more *Secondary Diagnosis Codes* than the DHB-submitted data in 99.2 percent of records. • ***Surgical Procedure Codes:*** For all records that had mismatching *Surgical Procedure Codes* between the **WellCare**-submitted and DHB-submitted data, the **WellCare**-submitted data always had a greater number of surgical procedure codes submitted when compared to the DHB-submitted data. This resulted in a low element accuracy rate of 93.0 percent. **Pharmacy Encounters** • ***Days Supply*:** Discrepant records in DHB's data contained a negative *Days Supply* value, whereas the *Days Supply* value in the PHP-submitted data was positive. All of these records were marked as void in DHB's data. This resulted in a 69.5 percent accuracy rate.
All-Element Accuracy	**Professional Encounters** • The all-element accuracy rate was high at 98.6 percent, indicating almost all elements in the matched records had the same values. **Institutional Encounters** • The extremely low all-element accuracy rate for **WellCare** at 1.1 percent can be ascribed to the high element omission rate for *Secondary Diagnosis Codes* (17.1 percent), and the low element accuracy rates for *Header Service To Date* (86.1 percent), *Secondary Diagnosis Codes* (16.1 percent), and *Surgical Procedure Codes* (93.0 percent). Since there was little overlap in the records that contributed to each of these discrepancies, the combination of all findings directly caused the low all-element accuracy rate.

Analysis	Key Findings
	Pharmacy Encounters • The all-element accuracy rate was 69.3 percent, which could be attributed to the *Days Supply* accuracy rate (69.5 percent).
Overall Encounter Accuracy	**Professional Encounters** • The match rates when comparing the DHB-submitted data to the PHP-submitted data and vice versa were high at 98.0 percent and 98.9 percent, respectively. This indicates nearly all records could be identified in both data sources and contained the same data element values. **Institutional Encounters** • The sums of the match and partial match rates when comparing the DHB-submitted data to the PHP-submitted data and vice versa were high at 94.1 percent and 99.8 percent, respectively. Although 6.0 percent of claim numbers that were in the DHB-submitted data were not found in the PHP-submitted data, about half of these unmatched claims could be traced to the PHP-submitted data by matching on a combination of *Beneficiary ID, Detail Service To Date,* and *Billing Provider NPI*. The other half of records only identified in DHB's data were records marked as void that were not submitted by the PHPs. **Pharmacy Encounters** • When comparing the DHB-submitted data to the PHP-submitted data and vice versa, match, partial match, and no match rates were similar. The match and partial match rates could be attributed to the *Days Supply* accuracy rate, while the no match rates could be attributed to the record omission and surplus rates.

Based on the comparative analysis results for **WellCare**, HSAG identified the following areas of strength and opportunities for improvement.

Strengths

Strength #1: Record surplus rates for professional and pharmacy encounter types, along with record omission rates for all encounter types were below 5.0 percent. This indicates that encounters in both the DHB-submitted and PHP-submitted data could largely be identified in both data sources.

Strength #2: All professional encounter element omission and surplus rates, all but one institutional encounter element omission and all element surplus rates, and all pharmacy element omission and surplus rates were less than 5.0 percent. This indicates that records which could be matched between the DHB-submitted and PHP-submitted data were largely complete.

Strength #3: All professional encounter data elements, all but three institutional encounter data elements, and all but one pharmacy encounter data element had an accuracy rate greater than 95.0

percent. This indicates that records which could be matched between the DHB-submitted and PHP-submitted data largely contained the same values.

Opportunities for Improvement

Weakness #1: The institutional encounter record surplus rate was high at 10.6 percent. This was due to voided claims in the DHB-submitted data that were not identified in the PHP-submitted data. **WellCare** should ensure records are submitted completely.

Weakness #2: Although the encounter element omission rates were low for most data elements between the DHB-submitted and PHP-submitted data, **WellCare** should ensure the following data element is submitted completely:

- Institutional encounters: *Secondary Diagnosis Codes*.

Weakness #3: Although matched records largely contained similar values between the DHB-submitted and PHP-submitted data, **WellCare** should ensure the following data elements have accurate values:

- Institutional encounters: *Header Service To Date*, *Secondary Diagnosis Codes*, and *Surgical Procedure Codes*.
- Pharmacy encounters: *Days Supply*.