



Arizona Health Care Cost Containment System

ENCOUNTER DATA VALIDATION

TECHNICAL DOCUMENT



Division of Health Care
Management

Data Analysis & Research

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**AHCCCS ENCOUNTER DATA VALIDATION
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Introduction

The Centers for Medicare and Medicaid Services (CMS) requires the Arizona Health Care Cost Containment System Administration (AHCCCSA) to oversee and report on the utilization of medical services of AHCCCS's prepaid capitated Contractors. Contractors report service utilization on an encounter. An encounter is a record of a service rendered by a provider who is registered with AHCCCSA to a recipient who is enrolled with an AHCCCS Contractor. Contractors are required to submit encounters to AHCCCSA for all services.

CMS requires AHCCCSA to submit progress reports on the encounter data collection process. AHCCCSA must take appropriate action to correct deficiencies identified in the collection of encounter data and enforce financial penalties on Contractors that are not in compliance with data collection requirements.

AHCCCSA's encounter collection actions are based on the results of encounter data validation studies. Collecting accurate, timely and complete encounters is a high priority for AHCCCSA. Encounter data is used to support programmatic budget assumptions and in actuarial analyses to set capitation rate ranges. In addition, this data is used for AHCCCS Contractor Performance Measures and Performance Improvement Projects.

This document provides Contractors with the methodology and statistical formulae used in Encounter Data Validation. The encounter validation process for both Acute and Behavioral Health, Professional and Institutional, encounter studies are discussed first, followed by the random sampling methodology, the selection of medical record entries, and error rate and sanction calculation. Examples of each of these calculations follow the discussion. The encounter validation process for the Acute and Behavioral Health, Pharmacy and ALTCS, Professional and Institutional encounter studies are discussed next. Finally, the procedures for calculating error rates and sanctions are discussed, each of which is followed by an example of these calculations.

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Encounter Data Validation Medical Record Study Steps (Acute, Behavioral Health, CMDP, and CRS)

1. At random, a measurement period is selected by AHCCCS. The measurement period will consist of dates 10/1 thru 1/31, 2/1 thru 5/31, or 6/1 thru 9/30.
2. Approximately 9 months after the end of a contract year, a sample size for the study is calculated based on prior study results and the median number of encounters reported in the prior contract years. For sample size formulas, calculations and methods see Random Sample Selection. The sample members must meet the following criteria:
 - a. The sample will consist of members receiving services in the measurement period.
 - b. At least half of members selected, by Contractor, for the study must have received institutional services.
 - c. The members must be continuously enrolled with same Contractor for the entire measurement period.
3. The sample is requested through the Information Management Subsystem of the Prepaid Medicaid Management Information System (PMMIS). Files for each Contractor are downloaded and the sample list of members by Contractor is generated.
4. For the members selected at random, an extract from each Contractor's claims system and Explanation of Benefits (EOB)s are requested for the selected measurement period. All Dental, Case Management, Pharmacy and Non-Emergency Transportation services will be excluded from medical record review. However, these services will be included in an electronic file match (see Encounter Data Validation Electronic File Study Steps).
5. A complete list of providers, utilizing claims and encounter data, is generated by AHCCCS and sent to Contractors.
6. Health Plans then have 2 weeks to collect provider addresses and return them to AHCCCS in a predetermined format.
7. AHCCCSA uses this information to coordinate the request for medical records directly from the providers.
8. Providers will have four weeks from the time of request to submit records to Health Plans for verification. Contractors will then have two additional weeks to collect any additional missing information and submit all records to AHCCCS. Contractors may be fined up to \$1000.00 per medical record, per day, for each medical record not received by the deadline.

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9. All medical records are scored (coded) for correctness errors in a double blind study. The records are scored for correctness in the following areas, if applicable:
 - a. Payment with or without adjustments
 - i. For UB Total Charges and Line by Line
 - b. Diagnosis Code
 - i. One Correct Diagnosis
 - ii. All Correct Diagnoses
 - iii. For UB Correct Primary Diagnosis
 - iv. For UB All Diagnoses in Correct Order
 - c. Procedure Codes
 - i. Procedure
 - ii. Modifiers
 - iii. Units
 - iv. Correct level
 - v. Revenue Codes
 - d. AHCCCS ID
 - e. NPI/Provider ID/Provider Type
 - f. Date of Service
 - g. Unbundling/Global Services
 - h. Place of Service
 - i. Encounter matches Medical Record
 - j. Encounter matches EOB
 - k. Encounter matches Claim

The records are then entered into the Encounter Reporting Validation System 2.0 (ERVS2) by each analyst without knowing how the other analyst coded the record

10. As each medical record is scored and entered into ERVS2, the analyst compares that record to an encounter in the downloaded file to determine if the analyst's coding matches that of the corresponding encounter. If a corresponding encounter cannot be found, the analyst marks the record as an encounter omission error. Any encounters that are not matched to a medical record at the end of the study are considered a medical record omission error.
11. Timeliness errors are calculated using SPSS and automatically assigned.
12. When all the records are scored, an ERVS2 report is printed that compares the codes of each record by each analyst; analysts then resolve any differences in coding through a reconciliation process.
13. Once differences are resolved, the preliminary error reports are generated and distributed to Contractors for their comments.
14. Contractors have the option to comment on these preliminary reports and provide additional documentation within 30 days.

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15. Analysts review Contractors comments and adjust, if appropriate, the number of errors.
16. Following any adjustments to the preliminary data, final correctness, omissions, and timeliness reports are generated and sent to Contractors. Sanctions are applied based on the data in these reports.
17. Contractors may challenge and/or grieve the study results. Adjustments are made in the study results only if a challenge or grievance has been successful.
18. The final report and results are sent to CMS.
19. Data will be examined for trends and results of these findings will be distributed to Contractors.

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Random Sample Calculation

The number of records previously scored is the beginning sample size (n) for the sample calculation. The omission, timeliness, and correctness error rates (p) are based on the previous year's error rates by Contractor.

- 1) The upper limit of a 95% confidence interval is calculated for each type of error for each Contractor according to the following formula for a large sample confidence interval assuming a normal distribution.

$$i = p + z \times \sqrt{(p(1-p))/n}, \text{ where:}$$

$z = 1.96$ (Z score for a two-tailed 95% confidence interval),

p = error rate (number of errors/ n), and

n = sample size.

- 2) The upper limit of the confidence interval is increased by a 10% safety cushion.

$$i_1 = i \times 1.1.$$

- 3) The number of records (n_0) is calculated for each type of error for each Contractor.

$$n_0 = (z^2 \times i_1 (1 - i_1)) / \alpha^2, \text{ where:}$$

$\alpha = 5\%$ (with a 95% confidence interval an α of 5% is two standard deviations from mean).

- 4) The calculated number of records is then decreased by the calculated omission rate for each Contractor.

$$n_1 = n_0 \times (1 - i_1), \text{ where:}$$

n_1 = number of encounters left after omission.

- 5) The number of records left after omission is compared to the number of encounters needed. Since the number of encounters left is smaller than the actual number needed, an extra number needed is calculated for timeliness and correctness.

$$e = n_0 - n_1, \text{ with:}$$

e = number of extras.

- 6) The greater value for either timeliness or correctness number of extras needed is taken and increased by the upper limit of the confidence interval including the safety cushion.

$$e_{tot} = \text{Max} (e_t, e_c) \times (1 + i_1), \text{ with } e_t = \text{extras for timeliness and } e_c = \text{extras for}$$

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correctness.

- 7) The number of records left after omission added to the total number of extras is the total number of cases needed.

$$n_{tot} = n_1 + e_{tot}, \text{ with } n_{tot} = \text{total number of cases needed.}$$

- 8) The sum of the number of records obtained from each member is divided by the sum of the number of members requested from each Contractor. This results in a yield for each Contractor.

$$y = n_{tot} / n_{mr}, \text{ where:}$$

n_{tot} = number of cases and,

n_{mr} = number of members requested.

- 9) The yield per sampled member based on a floating five-year average is used to calculate the records needed for this year. The total number of cases needed is divided by the calculated yield.

$$n_{need} = n_{tot} / y_t, \text{ where: } y_t = (y_5 + y_4 + y_3 + y_2 + y_1) / 5.$$

Note: until a five year yield per sample member can be established the number of encounters yielded for the measurement prior and encounter data in the prior measurement period will be used to establish y_t .

- 10) If the Contractor did not have previous study results (e.g., a new Contractor) the sample size may be maximized by assuming an error rate of 50% as the worst case scenario for the Contractor.

$$n = \{z^2(p(1-p))\} / k^2, \text{ where:}$$

n = sample size,

$z = 1.96$ (Z score for a two-tailed 95% confidence interval),

p = error rate, and

k = precision level desired.

Using a 95% confidence interval with a .05 precision level and assuming an error rate of 50%, then $n = \{(1.96)^2(.5)(.5)\} / .05^2 = 384$.

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Example of Random Sample Calculation

In this example, assume that Nearly Perfect Health Plan had the following error rates from the previous year:

Omission	Correctness	Timeliness
10.5%	15.5%	12.2%

and the sample size for Nearly Perfect from the previous year was:

Omission	Correctness	Timeliness
398	350	350

Step 1 - Calculate the upper limit of a 95% confidence interval using the formula $i = p + z \times \sqrt{(p(1-p)) / n}$. For Nearly Perfect the confidence interval for the omission, correctness, and timeliness rates would be:

omission rate i
 $= .105 + 1.96 \times \sqrt{(.105(1-.105)) / 398}$
 $= .105 + 1.96 \times \sqrt{.000236}$
 $= .105 + 1.96 \times .015366$
 $= .105 + .030118 = .135$ or 13.5%.

correctness rate i
 $= .155 + 1.96 \times \sqrt{(.155(1-.155)) / 350}$
 $= .155 + 1.96 \times \sqrt{.000374}$
 $= .155 + 1.96 \times .019345$
 $= .155 + .037915 = .193$ or 19.3%.

timeliness rate i
 $= .122 + 1.96 \times \sqrt{(.122(1-.122)) / 350}$
 $= .122 + 1.96 \times \sqrt{.000306}$
 $= .122 + 1.96 \times .017494$
 $= .122 + .034289 = .156$ or 15.6%.

Step 2 - The upper limit is increased by a 10% safety cushion using the formula $i_1 = i \times 1.1$. For Nearly Perfect the increase in the omission, correctness, and timeliness rates would be:

omission rate $i_1 = 13.5\% \times 1.1 = 14.9\%$.
correctness rate $i_1 = 19.3\% \times 1.1 = 21.2\%$.
timeliness rate $i_1 = 15.6\% \times 1.1 = 17.2\%$.

Step 3 - Calculate the number of encounters for each error using the formula

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$n_0 = (z^2 \times i_1 (1 - i_1)) / \alpha^2$. For Nearly Perfect the number of encounters for the omission, correctness, and timeliness errors would be:

$$\begin{aligned} \text{omission } n_0 &= (1.96^2 \times .149 \times (1 - .149)) / .05^2 \\ &= (3.84 \times .126539) / .0025 \\ &= .486111 / .0025 = 194. \end{aligned}$$

$$\begin{aligned} \text{correctness } n_0 &= (1.96^2 \times .212 \times (1 - .212)) / .05^2 \\ &= (3.84 \times .167175) / .0025 \\ &= .64222 / .0025 = 257. \end{aligned}$$

$$\begin{aligned} \text{timeliness } n_0 &= (1.96^2 \times .172 \times (1 - .172)) / .05^2 \\ &= (3.84 \times .142362) / .0025 \\ &= .546897 / .0025 = 219. \end{aligned}$$

Step 4 - The calculated number of encounters is decreased by the omission rate using the formula $n_1 = n_0 \times (1 - i_1)$. For Nearly Perfect the decreased number of encounters would be:

$$n_1 = 194 \times (1 - .149)$$

Random Sample Calculation Example Continued

$$n_1 = 194 \times .851 = 166.$$

Step 5 - Comparison of the number of encounters needed by using the formula $e = n_0 - n_1$. For Nearly Perfect the comparison would be:

The extra number needed for:
correctness is $e = 257 - 166 = 91$, and
timeliness is $e = 219 - 166 = 53$.

Step 6 - Greatest value of extras needed is increased by the safety cushion using the formula $e_{tot} = \text{Max}(e_t, e_c) \times (1 + i_1)$. For Nearly Perfect the larger number of extras needed is from correctness [91 (correctness) > 53 (timeliness)], so the number of extras assuming omissions would be:

$$\begin{aligned} e_{tot} &= \text{Max}(e_t, e_c) \times (1 + i_1) \\ &= 91 \times (1 + .149) \\ &= 91 \times 1.149 \\ &= 105. \end{aligned}$$

Step 7 - Calculate the total number of cases needed by using the formula

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$n_{tot} = n_1 + e_{tot}$. For Nearly Perfect the total number of cases needed would be:

$$n_{tot} = 166 + 105 = 271.$$

Step 8 - Calculate the yield of the number of cases to the number of members requested using the formula $y = n_{tot} / n_{mr}$. For Nearly Perfect assume the number of members requested from the previous study was 110, therefore, the yield would be:

$$y = 271 / 110 = 2.46.$$

Step 9 - Calculate the total number of members needed based on a floating 5 year average yield using the formula $n_{need} = n_{tot} / y_t$ and $y_t = (y_5 + y_4 + y_3 + y_2 + y_1) / 5$.

The five year average yield for Nearly Perfect was:

Year 5	Year 4	Year 3	Year 2	Year 1
2.46	2.77	2.98	1.50	2.12

$$y_t = (y_5 + y_4 + y_3 + y_2 + y_1) / 5$$
$$y_t = (2.46 + 2.77 + 2.98 + 1.50 + 2.12) / 5$$
$$y_t = 11.83 / 5$$
$$y_t = 2.37.$$

For Nearly Perfect the total number of members needed would be:

$$n_{need} = n_{tot} / y_t$$
$$n_{need} = 271 / 2.37$$
$$n_{need} = 115.$$

Therefore, the sample size requested from Nearly Perfect Health Plan would be 115 members' medical records.

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Error Rate Calculation

- 1) The sample error rate is calculated. The error rate is determined by taking the number of errors and dividing it by the sample size.

p (error rate) = number of errors / n , where:
 n = sample size.

- 2) The lower limit of a 95% confidence interval is calculated based on a standard statistical formula to account for limitations caused by sampling. The formula is:

$L = p - z \times \sqrt{(p(1-p)) / n}$, where:

L = lower limit of the confidence interval,

p = error rate,

z = 1.96 (Z score for a two-tailed 95% confidence interval), and

n = sample size.

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Example of Error Rate Calculation

Step 1 - The error rate is calculated with the formula $p = \# \text{ errors} / n$. In this example, for Nearly Perfect Health Plan the omission sample size is 418 with 40 errors. The omission error rate for Nearly Perfect would be:

$$p = 40 / 418 = 9.6\%.$$

Step 2 - Calculate the lower limit of a 95% confidence interval using the formula $L = p - z \times \sqrt{(p(1-p))/n}$. For Nearly Perfect the lower limit of a 95% confidence interval for omission errors would be:

$$L = .095694 - 1.96 \times \sqrt{(.095694(1 - .095694)) / 418}$$

$$L = .095694 - 1.96 \times \sqrt{.000207}$$

$$L = .095694 - 1.96 \times .014388$$

$$L = .095694 - .028201 = .067 \text{ or } 6.7\%.$$

The lower limit of the confidence interval (6.7% in this example) is then used in the sanction calculation.

Nearly Perfect's error rate calculations for correctness and timeliness errors would be likewise calculated.

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Sanction Calculation

The sanction amount by Contractor is calculated by applying the sanction formula:

$S = P \times ((L - A) \times N_{Adj})$, where:

S = sanction amount,

P = per-error sanction amount,

L = lower limit of the confidence interval,

A = allowable error rate of 5%, and

N_{Adj} = total number of encounters by form type adjusted for omissions by Contractor.

$N_{Adj} = N_{tot} / (1 - L_{Om})$, where:

N_{Tot} = total number of encounters submitted by form type by Contractor, and

L_{Om} = the lower limit of the omission error by Contractor.

The per-error base sanction amounts are:

Error Type	Professional "A" Study	Institutional "B" Study
Omission	\$2.00	\$5.00
Correctness	\$1.00	\$1.00
Timeliness	\$1.00	\$1.00

Sanction Adjustments

Per-error sanction amounts are adjusted upward or downward for each of the three measures – omission, correctness, and timeliness – separately, as compared to the prior year.

- If the error rate declines from the previous year's rate for a specific measure, the per-error sanction amount is reduced by 50%.
- If the error rate remains constant from the previous year for a specific measure, the per-error sanction amount will be 100%.
- If the error rate for a specific measure in the current year increases from the previous year's rate:
 - and the new rate exceeds the overall weighted average, the per-error sanction amount will be increased by 25%.
 - and new rate is below the overall weighted average, the per-error sanction amount will be 100%.

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Error Assignment

Omission and correctness errors are assumed to be Contractor error, unless supporting documentation demonstrates the error was caused by the provider.

- Plan errors: sanctioned at 100%.
- Provider errors: 75% of sanction earmarked for provider training.
- Plan outlay: 100% for plan errors + 25% for provider errors.
- Diagnosis correctness errors:
 - sanctioned at 100% if diagnosis is incorrect; or
 - 25% if non-specific (diagnosis root correct, but 4th or 5th digit missing or incorrect).

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Example of Sanction Calculation

The sanction is calculated by applying the sanction formula,
 $S = P \times (L - A) \times N_{adj}$ where $N_{adj} = N_{tot} / (1 - L_{om})$. Assume Nearly Perfect had submitted 855,933 encounters for the year. Recall that Nearly Perfect's omission lower limit is 6.7% and the allowable error rate is 5%. The per-error base sanction amount for omission errors is \$2.00. Their adjusted encounters would be:

$$N_{adj} = N_{tot} / (1 - L_{om})$$

$$N_{adj} = 855,933 / (1 - .067)$$

$$N_{adj} = 855,933 / .933 = 917,399.$$

The omission base sanction for Nearly Perfect would be:

$$S = P \times (L - A) \times N_{adj}$$

$$S = \$2.00 \times (.067 - .05) \times 917,399$$

$$S = \$2.00 \times .017 \times 917,399$$

$$S = \$31,192.$$

Recall that that Nearly Perfect Health Plan's omission error rate from the previous year was 10.5%. This year's error rate of 9.6% is less than last year's rate of 10.5%. Therefore the per-error sanction amount for omission errors is 50% of the base sanction amount ($\$2.00 \times .5$) or \$1.00, which is the revised per-error sanction amount.

According to Nearly Perfect's preliminary findings documentation submitted to AHCCCSA, 2 of the 40 omission errors were attributed to the plan and the remaining 38 errors were due to provider errors. Plan errors are sanctioned at 100% of the revised per-error sanction amount, i.e., \$1.00. For provider errors, plans are sanctioned for 25% of the revised per-error sanction amount and must earmark the remaining 75% for provider training and education.

The revised or adjusted sanction amount for Nearly Perfect would be:

$$S_r = P_r \times (L - A) \times N_{adj} \times (O_{pl} / O) + (P_r \times .25) \times (L - A) \times N_{adj} \times (O_{pr} / O), \text{ where}$$

- S_r = revised or adjusted sanction amount
- P_r = revised per-error sanction amount
- O_{pl} = omission errors attributed to the plan
- O_{pr} = omission errors attributed to the provider
- O = total omission errors

$$S_r = [P_r \times (L - A) \times N_{adj} \times (O_{pl} / O)] + [(P_r \times .25) \times (L - A) \times N_{adj} \times (O_{pr} / O)]$$

$$S_r = [\$1.00 \times (0.67 - 0.5) \times 917,399 \times (2 / 40)] + [(\$1.00 \times .25) \times (0.67 - 0.5) \times 917,399 \times (38 / 40)]$$

$$S_r = [\$1.00 \times 0.17 \times 917,399 \times 0.05] + [\$0.25 \times 0.17 \times 917,399 \times 0.95]$$

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$$S_r = [\$780] + [\$3,704]$$
$$S_r = \$4,484$$

As a result of provider omission errors, the amount earmarked for provider education and training would be:

$$S_t = (P_r \times .75) \times (L - A) \times N_{adj} \times (O_{pr} / O), \text{ where}$$

S_t = funds earmarked for provider education and training

$$S_t = (P_r \times .75) \times (L - A) \times N_{adj} \times (O_{pr} / O)$$
$$S_t = (\$1.00 \times .75) \times (0.67 - 0.5) \times 917,399 \times (38 / 40)$$
$$S_t = \$0.75 \times 0.17 \times 917,399 \times 0.95$$
$$S_t = \$11,112$$

For Nearly Perfect Health Plan, the correctness and omission lower limit are calculated the same. Nearly Perfect had 60 correctness errors out of a sample of 378. The correctness error rate is 15.9% with a lower limit of 12.2%. The correctness base sanction for Nearly Perfect would be:

$$S = P \times (L - A) \times N_{adj}$$
$$S = \$1.00 \times (.122 - .05) \times 917,399$$
$$S = \$1.00 \times .072 \times 917,399$$
$$S = \$66,053$$

Recall that that Nearly Perfect Health Plan's correctness error rate from the previous year was 15.5%. This year's error rate of 15.9% is greater than last year's rate of 15.5%. Therefore the per-error sanction amount for correctness errors is 125% of the base sanction amount (\$1.00 x 1.25) or \$1.25, which is the revised per-error sanction amount.

According to Nearly Perfect's preliminary findings documentation submitted to AHCCCSA, three of the 60 correctness errors were attributed to the plan and the remaining 57 errors were due to provider errors. Plan errors are sanctioned at 100% of the revised per-error sanction amount, i.e., \$1.25. For provider errors, plans are sanctioned for 25% of the revised per-error sanction amount, and the remaining 75% must be earmarked for provider training and education.

In addition, one of the plan's three correctness errors was identified as a diagnosis specificity error due to data entry. Twenty-six of the provider's 57 correctness errors were categorized as diagnosis specificity errors. Diagnosis correctness errors are sanctioned at 100% of the per-error sanction amount. Diagnosis errors due to specificity errors are sanctioned at 25% of the per-error amount.

The revised or adjusted sanction amount for Nearly Perfect would be:

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$$S_r = P_r \times (L - A) \times N_{adj} \times (C_{pl} / C) + (P_r \times .25) \times (L - A) \times N_{adj} \times (C_{plx} / C) + (P_r \times .25) \times (L - A) \times N_{adj} \times (C_{pr} / C) + (P_r \times .25 \times .25) \times (L - A) \times N_{adj} \times (C_{prx} / C), \text{ where}$$

S_r = revised or adjusted sanction amount

P_r = revised per-error sanction amount

C_{pl} = correctness errors, excluding specificity, attributed to the plan

C_{plx} = specificity correctness errors attributed to the plan

C_{pr} = correctness errors, excluding specificity, attributed to the provider

C_{prx} = specificity correctness errors attributed to the provider

C = total correctness errors

$$S_r = [P_r \times (L - A) \times N_{adj} \times (C_{pl} / C)] + [(P_r \times .25) \times (L - A) \times N_{adj} \times (C_{plx} / C)] + [(P_r \times .25) \times (L - A) \times N_{adj} \times (C_{pr} / C)] + [(P_r \times .25 \times .25) \times (L - A) \times N_{adj} \times (C_{prx} / C)]$$

$$S_r = [\$1.25 \times (0.122 - 0.05) \times 917,399 \times (2 / 60)] + [(\$1.25 \times .25) \times (0.122 - 0.05) \times 917,399 \times (1 / 60)] + [(\$1.25 \times .25) \times (0.122 - 0.05) \times 917,399 \times (31 / 60)] + [(\$1.25 \times .25 \times .25) \times (0.122 - 0.05) \times 917,399 \times (26 / 60)]$$

$$S_r = [\$2,752] + [\$344] + [\$10,665] + [\$2,236]$$

$$S_r = \$15,997$$

As a result of provider correctness errors, the amount earmarked for provider education and training would be:

$$S_t = (P_r \times .75) \times (L - A) \times N_{adj} - S_r, \text{ where}$$

S_t = funds earmarked for provider education and training

$$S_t = P_r \times (L - A) \times N_{adj} - S_r$$

$$S_t = \$1.25 \times (0.122 - 0.05) \times 917,399 - \$15,997$$

$$S_t = \$1.25 \times 0.072 \times 917,399 - \$15,997$$

$$S_t = \$82,566 - \$15,997$$

$$S_t = \$66,569$$

Nearly Perfect's sanction calculation for timeliness errors would be calculated similar to the omission sanction, except there is no assignment of plan or provider liability and therefore no adjustment based on provider-based error.

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Encounter Data Validation Electronic File Study Steps

- 1) The following areas of study are included in the electronic file match: ALTCS, Dental, Case Management, Non-Emergency Transportation and Pharmacy studies
- 2) Approximately 9 months after the end of a contract year, encounter extract files by Contractor are requested through the Information Management Subsystem on the Prepaid Medicaid Management Information System (PMMIS). Files for each Contractor are downloaded, sorted, and prepared for matching.
- 3) An extract from each Contractor's claims system is requested.
- 4) Contractors submit the claims file extract to the AHCCCSA Encounter Validation Unit. Those files are uploaded, sorted, and prepared for matching.
- 5) Duplicates and inappropriate codes are removed from the extract files. Procedure, revenue codes, diagnosis codes, dates of service, and provider and member identification numbers from the claims file extract are compared and contrasted to the encounter files extract. Three separate trials at matching the encounter data to the claims data are performed.
- 6) At each trial, fields from the extract files are matched to each other. If all the fields examined are exactly matched, the encounter is not an omission. If after the last trial the fields do not match, the claim in the claims extract file is counted as an omission error.
- 7) When all the data has been reviewed, a report by Contractor is printed that lists each claim that did not match to an encounter; analysts then check the encounter database on PMMIS in an effort to locate the matching encounter.
- 8) After the analysts have checked the encounter database and adjusted, if necessary, the number of omissions, the preliminary error report is generated and sent to Contractors for their comments.
- 9) Contractors have the option to comment on this preliminary report, and provide additional documentation within 30 days.
- 10) Analysts review the comments of Contractors and adjust, if appropriate, the number of errors.
- 11) Following any adjustments to the preliminary data, final omission reports are generated and sent to Contractors. Sanctions are applied based on the data in these reports.

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- 12) Contractors may challenge and/or grieve the study results. Adjustments are made in the study results only if a challenge or grievance has been successful.
- 13) The final report and results are sent to CMS.

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Error Rate Calculation

- 1) The sample error rate is calculated. The error rate is determined by taking the number of errors and dividing it by the sample size.

p (error rate) = number of errors / n , where:
 n = sample size.

- 2) The lower limit of a 95% confidence interval is calculated based on a standard statistical formula to account for limitations caused by sampling. The formula is:

$L = p - z \times \sqrt{(p(1-p)) / n}$, where:

L = lower limit of the confidence interval,

p = error rate,

z = 1.96 (Z score for a two-tailed 95% confidence interval), and

n = sample size.

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Example of Error Rate Calculation

Step 1 - The error rate is calculated with the formula $p = \# \text{ errors} / n$. In this example, for Nearly Perfect Health Plan the omission sample size is 300 with 27 errors. The omission error rate for Nearly Perfect would be:

$$p = 27 / 300 = 9.0\%.$$

Step 2 - Calculate the lower limit of a 95% confidence interval using the formula $L = p - z \times \sqrt{(p(1-p)) / n}$. For Nearly Perfect the lower limit of a 95% confidence interval for omission errors would be:

$$L = .09 - 1.96 \times \sqrt{(.09(1-.09)) / 300}$$

$$L = .09 - 1.96 \times \sqrt{.000273}$$

$$L = .09 - 1.96 \times .016523$$

$$L = .09 - .032385 = .058 \text{ or } 5.8\%.$$

The lower limit of the confidence interval (5.8% in this example) is then used in the sanction calculation.

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Sanction Calculation

The sanction amount by Contractor is calculated by applying the sanction formula:

$S = P \times ((L - A) \times N_{Adj})$, where:

S = sanction amount,

P = per-error sanction amount,

L = lower limit of the confidence interval,

A = allowable error rate of 5%, and

N_{Adj} = total number of encounters by form type adjusted for omissions by Contractor.

$N_{Adj} = N_{tot} / (1 - L_{Om})$, where:

N_{Tot} = total number of encounters submitted by form type by Contractor, and

L_{Om} = the lower limit of the omission error by Contractor.

Example of Sanction Calculation

The sanction is calculated by applying the sanction formula,

$S = P \times (L - A) \times N_{adj}$ where $N_{Adj} = N_{tot} / (1 - L_{Om})$. Assume Nearly Perfect had submitted 1,931,630 encounters for the year. Recall that Nearly Perfect's lower limit is 5.8% and the allowable error rate is 5%. The per-error sanction amount for omission errors is \$1.00. Their adjusted encounters would be:

$$N_{Adj} = N_{tot} / (1 - L_{Om})$$

$$N_{Adj} = 1,931,630 / (1 - .05762)$$

$$N_{Adj} = 1,931,630 / .94238 = 2,049,726.$$

The sanction for Nearly Perfect would be:

$$S = P \times (L - A) \times N_{adj}$$

$$S = \$2.00 \times (.05762 - .05) \times 2,049,726$$

$$S = \$2.00 \times .00762 \times 2,049,726$$

$$S = \$31,220.$$

For the current ALTCS studies, only omission errors are evaluated and sanctioned.

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New Contractor Data Validation Medical Record Pilot Study (A and B Studies)

Introduction

CMS waiver requirement number 23 for the Encounter Data Validation Study for New MCOs or PIHPs reads as follows: if the State contracts with new MCOs or PIHPs the state shall conduct a validation study 18 months after the effective date of the contract to determine completeness and accuracy of the encounter data. The initial study shall include validation through a sample of medical records of Demonstration enrollees.

Sampling

1. In order to meet number 23 of the current CMS waiver, the AHCCCS Data Validation Unit will select a random representative sample, by new MCO.
2. The sampling formula ($n = \frac{Z^2 * K^2 * N}{Z^2 * K^2 + (P / (1 / (1 - P))) * (N - 1)}$) will be utilized with the following assumptions: a 15% error rate, a 95% confidence interval, and a +/- 5% confidence level.
3. A minimum of 35 members will be selected for this study to yield a statistically significant number of encounters for scoring. It is also supported that a sample greater than 30 members, by current epidemiological and statistical standards, will allow significant representation of key demographic variables (race, gender, age, placement, etc.) for extrapolation of results and maintains external and internal validity.
4. Members must be continuously enrolled with the new MCO for at least 4 of the first 6 months of that MCO's new contract.

Timeline

1. The Data Validation Unit study measurement period will consist of the first 6 months of the contract year of study.
2. The study will be initiated 45 days after the end of the first contract year. A request for records will be sent to the MCO. This timeframe has been selected to allow an approximate lag of 9 months for the submission of encounters.
 1. The MCO will have 30 days to collect records and return them to AHCCCS.
 2. AHCCCS will log all medical records within 15 days and select records to be scored beginning its evaluation on January 1.
 3. On January 1, a double blind descriptive study will be conducted examining correctness and omission errors. Like all studies conducted for data validation, all case management and transportation records will be excluded. Utilizing the current methodology a double blind study consists of two data validation certified coders scoring each record as if they were going to bill for each service. These records are then compared to the encounter universe. The results of each coder are then compared to one another. Any differences are then reconciled.
 4. The Data Validation Unit will use half of the records to conduct the study by the current methodology, as described, and it will use the other half of the records to

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conduct a reverse validation. This study will compare a random selection of encounters to the medical record. This additional component will allow for a complete picture of how services are being reported.

5. Due to the compressed timeline, unlike current Data Validation methodology, preliminary results will not be sent to MCOs to refute findings. This step is not necessary because no sanctions will be imposed. However, if plans fail to meet the current CMS standard of greater than a 5% error rate, a Corrective Action Plan will be required for each area that is deficient.
6. The data validation study will be completed by March and sent for internal review and approval.
7. After any needed revisions, the study results will be sent to new MCOs and CMS by the end of March.
8. Along with completion of this pilot study each new MCOs will be subject to the normal annual data validation study that is conducted for each contract year.

Data

The data warehouse will be used to extract members meeting the sample frame. SPSS will then be utilized to select a representative random sample. The data warehouse will then be utilized to extract the encounter data for those members selected. This information will then be placed into a custom Access database for use by the data validation staff for the completion of the study. All results will be calculated using SPSS and Excel.