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EQR PROTOCOL 4 VALIDATION OF ENCOUNTER DATA REPORTED BY THE MCO

A Voluntary Protocol for External Quality Review (EQR)

Protocol 1: Assessment of Compliance with Medicaid Managed Care Regulations
Protocol 2: Validation of Measures Reported by the MCO
Protocol 3: Validation of Performance Improvement Projects (PIPs)
Protocol 4: Validation of Encounter Data Reported by the MCO
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Department of Health and Human Services (HHS)
Centers for Medicare & Medicaid Services (CMS)

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PURPOSE AND OVERVIEW OF THE PROTOCOL

This voluntary protocol is used to validate encounter data submitted to States by MCOs. Encounter data are the electronic records of services provided to MCO enrollees by both institutional and practitioner providers (regardless of how the providers were paid), when the services would traditionally be a billable service under fee-for-service (FFS) reimbursement systems. Encounter data provide substantially the same type of information that is found on claim forms (e.g., UB-04 or CMS 1500), but not necessarily in the same format. States use encounter data to assess and improve quality, monitor program integrity, and determine capitation payment rates.

This protocol specifies procedures for EQROs to use in assessing the completeness and accuracy of encounter data submitted by MCOs to the State. The State must establish standards for encounter data, including the following:

1. An operational definition of an "encounter" and the types of encounters (e.g., physician, hospital, dental, vision, laboratory, etc.) MCOs must report;
2. Standards for encounter data accuracy and completeness; and
3. Objective standards to which encounter data will be compared.

The protocol consists of five sequential activities:

1. Review State requirements for collecting and submitting encounter data;
2. Review the MCO's capacity to produce accurate and complete encounter data;
3. Analyze MCO electronic encounter data for accuracy and completeness;
4. Review of medical records for confirmation of findings of analysis of encounter data; and
5. Submission of findings.

States may contract with EQROs for mandatory or voluntary activities at the 75 percent Federal match rate. While the validation of encounter data is voluntary, CMS strongly encourages States to contract with EQROs to implement this particular protocol at the 75 percent Federal match rate due to the need for overall valid and reliable encounter data as part of any State quality improvement efforts. As Federal programs transition toward payment reform for demonstrated quality of care, validation of encounter data in the use of performance data will become increasingly significant. Transparency of payment and delivery of care is an important part of health reform as demonstrated in various provisions of the Affordable Care Act. Validation of encounter data can help States reach the goals of transparency and payment reform to support their efforts in quality measurement and improvement.

ACTIVITY 1: REVIEW STATE REQUIREMENTS

The purpose of this activity is to review information about State requirements for collecting and submitting encounter data. States need to provide the EQRO with:

1. The State's requirements for collection and submission of encounter data by MCOs (these typically are specifications in the contracts between the State and the MCO);
2. The data submission format specified by the State for MCO use;
3. Requirements for the types encounters that must be validated;
4. The State's data dictionary;
5. A description of the information flow from the MCO to the State, including the role of any contractors or data intermediaries;

6. State standards for encounter data completeness and accuracy;
7. A list and description of edit checks built into the State's Medicaid Management Information System (MMIS) that identifies how the system treats data that fails an edit check;
8. The time frames for data submission;
9. Prior year's EQR report on validating encounter data (if available); and
10. Any other information relevant to encounter data validation.

The State should specify acceptable rates of accuracy and completeness for each data field submitted for each encounter type, which may depend on the intended use of the encounter data. Although initial error rates may be higher, each MCO's *targeted* error rate should be below 5 percent for each time period examined.

The EQRO should use the *Acceptable Error Rates Specification and Identified Areas of Concern* Form (see Attachment A, Table 1) and *the Data Field Validity Requirements* Form (see Attachment A, Table 2) or similar forms to summarize these specifications for each type of encounter and each data field.

Definitions:

- Missing – Encounters that occurred but are not represented by an encounter record.
- Surplus – Encounter records which did not occur or which duplicated other records.
- Erroneous – Encounters that occurred and are represented by an encounter record that contains incorrect data elements.
- Acceptable Error Rate – The maximum percentage of missing, surplus, or erroneous records that the State accepts.

ACTIVITY 2: REVIEW MCO'S CAPABILITY

The purpose of this activity is to determine the MCO's capability for collecting accurate and complete encounter data. Prior to examining data produced by the MCO's information system, the EQRO must determine whether the MCO's information system is likely to capture complete and accurate encounter data. The EQRO should assess the information system through two steps:

1. Review the MCO's Information Systems Capabilities Assessment (ISCA); and
2. Interview MCO personnel.

Step 1: Review the MCO Information System Capabilities Assessment (ISCA)

The EQRO must review or conduct an ISCA to determine where the MCO's information systems may be vulnerable to incomplete or inaccurate data capture, integration, storage, or reporting. An MCO may have undergone an assessment of its information systems, (e.g., via the HEDIS®[1] Roadmap as part of a HEDIS® Compliance Audit or as part of a mandatory external quality review protocol). The EQRO needs to determine if the MCO has already undergone such a review and if the review findings are current. The HEDIS® Roadmap is an accepted ISCA for

[1] HEDIS® is a registered trademark of the National Committee for Quality Assurance (NCQA).

this protocol[2]. If a recent ISCA has been conducted, the EQRO should obtain a copy of the findings. If the MCO has not recently undergone an ISCA, the EQRO must conduct one consistent with the process described in Protocols 2 and 9.

From the ISCA findings, the EQRO should understand the following:

1. Information Systems: Data Processing and Procedures
    a. Data Base Management System (DBMS) Type
    b. Programming language
    c. Process for updating the program to meet changes in State requirements
2. Claims/Encounter Processing
    a. Overview of the processing of encounter data submissions
    b. Completeness of the data submitted
    c. Policies/procedures for audits and edits
3. Claims/ Encounter System Demonstration
    a. Processes for merging and/or transfer of data
    b. Processes for encounter data handling, logging and processes for adjudication
    c. Audits performed to assure the quality and accuracy of the information and the timeliness of processing
    d. Maintenance and updating of provider data
4. Enrollment Data
    a. Verification of claims/encounter data
    b. Frequency of information updates
    c. Management of enrollment/disenrollment information

The EQRO should use the ISCA findings (see Appendix V) to identify issues that may contribute to inaccurate or incomplete encounter data. Some examples include MCO use of non-standard codes or forms, inadequate data edits, or the lack of provider contractual requirements that tie payment to data submission. Based on its review of the MCO ISCA, the EQRO should note, for each encounter type listed in the Acceptable Error Rates Specification Form, any concerns about the encounter data using the fourth column in Table 1. The EQRO should use the assessment findings to identify issues for follow-up with MCO staff and to focus its detailed analysis of the MCO's encounter data on potential problem areas through the Data Quality Test Plan in Activity 3.

Step 2: Interview MCO Personnel

After reviewing the findings from the ISCA, the EQRO should conduct follow-up interviews with MCO personnel as needed to supplement the information and ensure their understanding of the MCO's information systems and processes. Refer to Protocol 2 for guidance on conducting follow-up interviews.

ACTIVITY 3: ANALYZE ELECTRONIC ENCOUNTER DATA

This activity is the core of the process to determine the validity (completeness and accuracy) of the encounter data. Once the steps in this activity have been completed, the EQRO and the State will have a thorough understanding of whether the data can be used for analysis. If the

[2] The HEDIS® Roadmap may be used in accordance with the terms and conditions of NCQA's HEDIS® Compliance Audit License Agreement.

EQRO is unsure of the quality of the encounter data at the completion of Activity 3, it should *not* proceed to the medical record review activity (Activity 4). Rather, the EQRO should repeat the steps of this activity or seek additional information until the EQRO is able to determine the quality and usefulness of the submitted encounter data.

The EQRO uses information obtained from these analyses, the ISCA, follow-up interviews, and the results of State data edits on submitted encounter data to assess the completeness and accuracy of MCO encounter data.

The EQRO will:

1. Develop a data quality test plan;
2. Verify the integrity of the MCO's encounter data files;
3. Generate and review analytic reports; and
4. Compare findings to State-identified standards.

Step 1: Develop a Data Quality Test Plan

The EQRO uses the information obtained through Activities 1 and 2 to develop a plan for testing the quality of the data. The plan should account for the edits built into the State's data system so that it pursues data problems that the State may have overlooked or allowed. The plan should specify the areas to be tested and the expected results. Using information provided by the State in Activity 1, information obtained from the MCO through the ISCA and follow-up interviews, the EQRO develops a data quality test plan to determine the following:

- General magnitude of missing encounter data. The EQRO uses information from the State about encounter data that fails the State's edit checks and reasons for failures and comparisons with normative data on encounters for similar population, to determine whether, and how much, encounter data are missing.

- Types of potentially missing encounter data. MCOs that provide payment for "bundled" services, such as prenatal care, or capitate providers, may not receive complete information from those providers. The EQRO applies its knowledge of the MCO's contractual relationships with providers to identify specific areas to investigate for missing services.

- Overall data quality issues. The EQRO must identify specific data quality problems such as inability to process or retain certain fields or limited coding specificity on the encounter data record.

- MCO data submission issues. The EQRO must identify problems the MCO has compiling its encounter data and submitting the data files to the State.

Step 2: Verify the Integrity of the Encounter Data Files

Step 2 and Step 3 of this Activity are closely related. When the EQRO reviews the data for accuracy and completeness, it conducts both a macro- and microanalyses. Step 2 describes the macro-analysis while Step 3 describes the microanalysis.

In Step 2, the EQRO obtains the encounter data to analyze either by accessing the State's information system or by obtaining an encounter data extract from the State's data system. It conducts a basic integrity check of the data files. It answers the questions: Do the data exist? Do they generally fit with expectations? Are they of sufficient basic quality to proceed with analyses that are more complex? The EQRO should automate the analyses required in Step 2 and perform them as a standard data review process. The EQRO should perform these analyses for each of the different encounter data files (e.g., hospital, dental, ambulatory, etc.) and for each of the data fields in those files. The EQRO should perform the following specific steps:

1. Verify that the State's identifiers (IDs) are accurately incorporated into the MCO information system. When the encounter data have not been edited in the State system[3], the EQRO could compare the encounter data file to a State eligibility file and check for accuracy of the IDs, and other eligibility information (e.g., age, sex, and eligibility category). In addition, the EQRO will determine whether there are encounter data for the expected proportion of beneficiaries in comparison to utilization norms for similar populations.
2. Without duplicating the State's edit checks, the EQRO should apply other consistency checks, such as verifying that critical fields contain non-missing values in the correct format and specificity and that values are consistent across fields.
3. Inspect the data fields for general validity (i.e., information for each critical field is within required ranges, and the volume of data is consistent with the MCO's enrollment).

Step 3: Generate and Review Analytic Reports

The EQRO will analyze and interpret data on 1) submitted fields, 2) volume/consistency of encounter data, and 3) utilization rates. The EQRO should document the findings on a standard form similar to Tables 3 and 4 in Attachment A of this protocol.

Analyzing Data in Submitted Fields

The EQRO addresses three questions in a field-specific review:

1. Is there information in the field, and is that information of the type requested? The EQRO must check each data field to determine whether the information is of the correct type and size in relation to the State's data dictionary. For example, if CPT-4 codes are requested, the field should have 5 digits. If the State's Medicaid/CHIP beneficiary ID is requested, the field should contain the correct number of letters and digits. (Use Table 3 or similar tool to record answers.)
2. Are the values valid? When compared to an external standard, are the values in the field valid? For instance, if ICD-9/ ICD-10 diagnosis codes have been requested, are the values in the diagnosis field current and valid ICD-9/ ICD-10 diagnosis codes? (Use Table 3 or similar tool to record answers.)
3. Are the values reasonable? The EQRO develops frequency distributions of the values and compares them to normative data from a similar population to determine whether the values make sense for the submitted population. For example, if one of the required fields

[3]Some States have chosen to by-pass the MMIS and have MCOs submit data directly to an outside vendor or data intermediary. Depending on the rigor of the eligibility checking performed by the data intermediary, the EQRO might choose to conduct this eligibility review.

is “place-of-service,” there should be a reasonable distribution between inpatient hospital, outpatient hospital, emergency room, and physician office.

Analyzing Volume /Consistency of Encounter Data

The EQRO should generate basic statistics on the encounter data, including the number of enrollees, the number of encounters, and counts and totals for various eligibility categories or demographic subgroups, diagnoses, and types of services. The EQRO should include frequency distributions on specific fields, as well as on the variables created explicitly for data validation purposes. The EQRO may also run distributions on subsets of variables and observations where the result indicates potential data validity concerns. For example, the EQRO might detect a low rate of outpatient services. By analyzing the rates of outpatient services by provider zip code, the EQRO might discover that the State’s edit files are missing certain zip codes, resulting in the rejection of encounters from providers in those zip codes. Initially, this data editing process failure looked like an overall low rate of services, but by analyzing specific fields and checking for reasonableness, the EQRO detected a different problem. The EQRO should also generate univariate statistics (e.g., means, medians, and modes) as appropriate. The EQRO should check the output of these reports for reasonableness and to detect specific problems such as entire categories of data missing from the regular data submissions.

The EQRO should also analyze encounter data for other volume/consistency dimensions including time, provider type, type of service, demographic groupings, and other dimensions as directed by the State (e.g., aid category). The EQRO conducts these analyses on the encounter data and compares the results to benchmark information.

- Time. The EQRO should analyze encounter data by time dimensions (e.g., service date and processing date) to check consistency. Inconsistent processing can indicate other problems within the MCO’s information system which may affect the validity of the encounter data. After establishing the length of time between service dates and processing dates, the EQRO should compare these with State standards or benchmarks for data submission and processing.

- Provider. The EQRO should analyze encounter data by provider type to identify any missing data for specific provider types and examine fluctuations in patient visits for each time period. The EQRO will compare the distribution of MCO encounter data by provider type to normative information.

- Service Type. The EQRO should examine the following: 1) the relationship between ancillary services (e.g., labs, x-rays, therapy, etc.) and visits; 2) the relationship of outpatient visits to number of prescriptions; 3) the relationship of primary to specialty care visits; 4) outpatient services associated with inpatient admissions; and 5) any other relationships between service types identified as problematic in prior years, through the ISCA, State edit checks or other EQRO validation activities.

- Age- and Sex-Appropriate Diagnoses and Services. If not addressed in the State’s encounter data edit checks, the EQRO should determine if the diagnoses and services reflect expected care by age and sex. For example, the EQRO will verify that sex-specific diagnoses (such as endometriosis or undescended testes) and procedures (such as deliveries or hysterectomies) correspond to the expected sex of the patient.

As part of the review, the EQRO should display the data quality findings graphically to identify issues for further investigation and to communicate the results of the data quality review.

Analyzing Utilization Data
The EQRO should periodically compile and review statistics on utilization rates overall and by specific diagnosis, procedure, service and provider types when appropriate. The EQRO should generate these reports for each MCO and on the entire encounter data set for all MCOs to account for problems associated with small numbers of encounters for individual MCOs. The EQRO should analyze the utilization rates by patient demographics, diagnosis, type of service, and type of provider and compare them to external benchmark information.

Step 4: Compare Findings to State-Identified Standards

The EQRO will compare the encounter data submitted by each MCO to standards and benchmarks identified by the State. These standards can be obtained from various sources, including aggregate encounter data from all Medicaid or CHIP MCOs in the State, other comparable States, historical fee-for-service (FFS) or Primary Care Case Management (PCCM) data in that State or other national benchmarks. The State may also look to commercial managed care plans, national standards, or other benchmarks. The State will need to identify such standards and document them. Please see Table 5 in Attachment A of this protocol.

The EQRO must understand which departures from comparison data merit further investigation. For example, emergency room utilization might be lower in managed care than in FFS. However, large swings in utilization from one time period to the next, or differences from the benchmark that are not explained by delivery system differences may indicate incomplete or erroneous encounter data rather than a change in provider practice patterns. The EQRO should vet its assumptions about changes in utilization with the MCO(s) and with the State to determine what follow up analysis might be required.

The EQRO uses the results of Activity 3 to develop a long-term monitoring strategy for assessing the quality of the encounter data. As the data evolve over time, the EQRO will be able to design targeted validation strategies to identify problem areas requiring resource intensive medical record review.

ACTIVITY 4: REVIEW OF MEDICAL RECORDS

The purpose of this activity is to confirm findings from analysis of encounter data by reviewing medical records. Medical record review can provide additional verification of the information obtained from the analysis of electronic encounter data. In this activity, the EQRO will determine sampling for medical record review and obtain and review medical records. The EQRO should use medical record review only in cases where the medical record is the primary source of the information. The medical record is the primary source for clinical information, whereas information collected as part of eligibility determination is the primary source for demographic information such as patient age, sex, and race.

This protocol makes the following assumptions about medical record review:

- Medical record review for encounter data validation is performed independently of medical record review for evaluation of performance measures or other purposes;

- The State will decide when medical record review should begin and how frequently it should be performed; and
- Once the State determines medical record review is appropriate, the EQRO will draw a sample of medical records for validation on a regular and periodic basis specified by the State.

The EQRO should approach validating encounter data using medical records as if it were a research question with clear hypotheses, well defined populations, and stated error tolerances. A rigorous research design will ensure that the results of this resource-intensive effort will be meaningful and useful. The specific approach to medical record validation will depend on the questions/hypotheses to be addressed. Depending on the stated hypotheses, the EQRO begins with a sample of encounters, enrollees, or both.

The EQRO samples encounters to address research questions like: "Are the encounters fully coded for all diagnoses?" or "Are the procedures fully coded?" The EQRO samples enrollees to address research questions like: "Were all encounters received for services that were delivered?" In this case, the EQRO would sample MCO enrollees for a specific time period and match services recorded in the medical record with those found on the encounters to assess the completeness and accuracy of encounter data. To reduce the number of medical records that must be located for each enrollee, the EQRO should consider limiting medical record review to a specific type of encounter, such as inpatient admissions or physician office visits; however, the EQRO should take care that in narrowing the scope of its review, it does not overlook service types that are vulnerable to undercounting.

The decision to perform medical record review must balance the resource intensity with the information gained from the activity and acknowledge that, in all cases, the medical record must be located, the reviewers must be trained and experienced, the confidentiality of patient records must be maintained, and costs must be minimized.

Step 1: Determine Sampling for Medical Record Review

First the EQRO should determine the sample size for each MCO's medical record review. The size of the sample depends on a number of factors that the State may determine, including:

- The minimum error rate the EQRO must detect;
- The frequency with which the EQRO will perform the review; and
- The subsets of encounter data the EQRO must validate.

Due to the variation in MCO enrollment and previous validation results, it may be statistically appropriate to determine different sample sizes for each MCO. However, the EQRO may find it operationally more efficient to specify the same sample size for all MCOs. The EQRO should set sample sizes sufficient to estimate the error rate for each type of encounter within each MCO, with equal precision for each time period under review. The EQRO should determine the sample size for each MCO as directed by the State or in consultation with a qualified statistician. Once the EQRO has determined the sample size, it selects this number of enrollees from each MCO for medical record review. The sample should include extra records in the event that some medical records are not available. The EQRO should clearly specify rules for substituting medical records. It may be appropriate, for example, to allow substitution if a medical record is out of the office for legal review, whereas it is inappropriate to substitute a record that cannot be

located. The EQRO must use methodologically sound sampling techniques that defend against bias (see Attachment B).

Step 2: Obtain and Review Medical Records and Document Findings

The EQRO should sort all records for all MCOs by provider. For each provider, the EQRO should give the provider a list of each patient's name, age, and sex, the provider's name, and the target dates of service, sufficient for the provider to identify the correct beneficiary and locate the record. The EQRO should assess the fields on the encounter data as specified by the State and documented in Table 2, Attachment A.

The EQRO should use experienced clinical coding validators who review codes based on the diagnoses stated by the provider in the medical record. Experienced clinical coding reviewers should use their clinical understanding, combined with their knowledge of appropriate coding guidelines, to assign the right codes to a record. When a medical record lacks sufficient documentation to select the most specific code(s), clinical coding validators may consult with each other and other healthcare professionals to answer clinical questions.

The EQRO should categorize errors by level, type and source. Clinical coding validators should record all applicable error categories:

- Level: Identifies whether an encounter is present in the database. The presence or absence of an encounter determines the strategy followed by the reviewer to complete the review.
- Type: Describes if codes or other data are correctly or incorrectly present or absent.
- Source: Assigns the most likely reason for the type of error found. While this may be a subjective determination, it will be helpful when giving feedback to MCO so that they can target their data quality improvement processes.

The State may designate certain errors as "critical" depending on the intended use of the data. These designations may evolve over time as the issues with encounter data validation or uses of encounter data change. For example, in early validation efforts, a State may focus on diagnosis and procedure codes rather than physician specialty or place-of-service. These fields are important but are of little value without accurate clinical coding. Once diagnosis and procedure coding is accurate, knowing accurate specialty and place of service greatly increases the value of the data. Distinguishing "tiers of errors" (e.g., critical, serious, moderate, etc.) allows the State to use encounter data that are not totally complete and accurate.

The EQRO should document the findings of each medical record review on a form, such as the Medical Record Review Findings Tool for Encounter Data Validation (Attachment 1). The EQRO must also provide staff performing the medical record reviews with documentation guidelines that reflect reporting requirements, the data elements chosen for validation and the error categories to be used. These guidelines should describe exactly how to document the findings of the medical record review. The EQRO's documentation guidelines should include the following:

- Directions for reviewing medical records, including when to allow substitutions and how to document them;
- Instructions for evaluating conflicting documentation;

- Instructions on what to do when no code can be readily assigned;
- Use of optional codes;
- Definitions of what constitutes errors, and how to document them;
- List and location of approved reference materials (e.g., coding manuals, medical textbooks, etc.); and
- Whom to consult for additional assistance.

ACTIVITY 5: SUBMISSION OF FINDINGS

After the performance of Activities 1- 4, the EQRO will create data tables that display summary statistics for the information obtained from these activities for each MCO. Summarizing the information in tables makes it easier to evaluate, and highlights patterns in the accuracy and completeness of encounter data. The EQRO should draft a narrative to accompany these tables, highlighting individual MCO issues and providing recommendations to each MCO and the State about improving the quality of the encounter data.

END OF PROTOCOL