

Understanding PERM Eligibility Error Rates

To determine the “true” eligibility error rate for a state, we would need to review every single eligibility decision to see which are correct and which are in error—which would be cost-prohibitive and logistically impossible. Therefore, PERM *estimates* error rates based on a sample drawn from the universe of eligibility determinations; error findings from the sample are projected to estimate an error rate that is very close to the true error rate (within plus or minus three percentage points).

For each state, CMS estimates three error rates:

1. *Active case payment error rate*: A dollar-weighted error rate, calculated from the active case payment review findings, based on the number of dollars paid in error due to services being provided to an individual who was not eligible for those services
2. *Active case error rate*: The percentage of decisions, calculated from the active case review findings, in which eligibility is granted incorrectly and the case is not eligible for coverage
3. *Negative case error rate*: The percentage of decisions, calculated from the negative case review findings, in which eligibility was incorrectly denied or terminated

How are the state-level error rates calculated?

All three state-level error rates are generally calculated in the same manner, with the primary difference being the inclusion of payment data in the active case payment error rate.

- *Active case payment error rate*: We begin with a sample of active cases from the federal fiscal year that is large enough to allow us to reliably project our findings to the universe. The annual active case sample size is divided evenly across the twelve months of the sample, which results in an equal number of cases being sampled in each month. (The size of the universe—the number of eligibility determinations each month—is likely to vary some from month to month.) The state reviews each case in the sample to determine if it is correct or in error, and collects all fee-for-service claims and managed care payments (as applicable) for services received in the sample month and paid in that month and the following four months for each case in the sample. If the case is correct the associated payments are considered correct; if the case is in error the associated payments are considered in error. In some cases, only a portion of the payments are considered in error (e.g., if beneficiary liability is understated or overstated). If a state finds a case undetermined, all dollars associated with that case are identified as undetermined and are included as dollars in error.

The “combined ratio estimator” is used to estimate the error rate. Because the error rate will be estimated based on a sample, we must calculate “sampling frequencies” (ratio of sampled cases to the universe) to project total dollars and total dollars in error based on the sample. If a state elects not to stratify the active case universe, then the error rate is based on twelve strata—one stratum for each sample month in the cycle. If a state elects to stratify the active case universe among new applications, redeterminations and all other cases, then the error is calculated using 36 strata—three strata for each sample month in the cycle. Because the universe will vary from month to month, the sampling frequencies will vary by strata/month. Therefore, we must calculate projections for each stratum and then combine them into an overall error rate. The last page of this paper includes a brief example of this process using two strata (i.e., two months). The same basic process would be used to estimate an error rate based on 12 or 36 strata.

- *Active and negative case error rates:* The annual active and negative case sample sizes are calculated for each state and are divided evenly across the twelve months of the sample, which results in an equal number of cases being sampled in each month. The size of the universe—the number of active or negative cases each month—will vary from month to month. For the active and negative case error rates, we do not factor in any information on payments associated with the cases. The sampling weights for the active and negative case error rates are calculated in the same manner as the payment error rate as described above. The eligibility active case and negative case error rates are computed using the same formula as the payment error rate, except we use total sampled cases and the total cases in error instead of total paid amount and total amount paid in error.

How are the national eligibility error rates calculated?

The national eligibility error rate is constructed in two steps. Using the same sampling frequency-based method used to produce state-level rates described above we construct an error rate for each of the four state strata in the PERM sampling design.¹ These four error rates are considered to be combined ratio estimators, just as in the state-specific calculations. However, in this case the numerator of the error rate is the total projected improper payments for all states in a state stratum, using the appropriate sampling frequencies. We also project payments using the same sampling frequency-based approach. These four state strata-specific rates are then combined by weighting each rate by its relative share of total national expenditures. This combining of rates using expenditures is known commonly as “separate ratio estimation.”

How does the eligibility payment error rate factor into the national overall PERM error rate?

At the end of each PERM cycle, CMS calculates the three eligibility error rates at both the state and national level. However, only the national active case payment error rate is factored in to the national payment rate that is reported by CMS in the Agency Financial Report. The PERM eligibility payment error rates are combined with claims (combined fee-for-service and managed care) rates to estimate the overall error rate at the state and national levels. Since the eligibility and claims sample are independent, the combined rate resulting from the two samples are additive, with a small adjustment factor to account for the chance of overlap between the claims and eligibility samples.

How are state-specific sample sizes calculated for eligibility?

The PERM final rule (published in August 2010) sets a maximum sample size of 1,000 cases but otherwise allows CMS and the Statistical Contractor the flexibility to make adjustments, as needed, to state sample sizes in order to meet precision at the national level. The active case payment rate is used to determine state-specific sample sizes for each cycle. State-specific sample sizes are based on state-level error rates from the prior cycle and the associated variance and standard error. The Statistical Contractor will determine the minimum sample size needed to allow a statistically valid projection at the national level.

¹ Just as PERM reviews a random sample of payments or eligibility within a state (and not all payments or eligibility decisions made in a given year), it also reviews a sample of states. The states were stratified into four groups by total Medicaid spending. The first stage of the sampling occurred prior to the start of the FY2006 PERM cycle and this stage of sampling is static. The sample of 17 states measured each year does not change across PERM cycles.

Example Eligibility Error Rate Calculation

1. Compile a universe of active eligibility cases with two “strata”	Month one universe: 1,000 Month two universe: 1,500	
2. Sample eligibility cases from month one and month two	Month one sample: 10 Month two sample: 10	
3. Calculate sampling weights for each month by dividing the number of cases in the universe each month by the number sampled each month	Month one sampling weight: 100 Month two sampling weight: 150	Month one universe/Month one sample $1,000/10=100$ Month two universe/Month two sample $1,500/10=150$
4. Collect payments associated with all cases sampled each month	Month one payments in sample: \$350 Month two payments in sample: \$200	
5. Identify dollars in error based on case finding review	Month one: Two cases in error for a total of \$50 in error Month two: Three cases in error for a total of \$75 in error	
6. Project total dollars from the sample to the universe by multiplying the dollars in each monthly sample by the sampling weight for the corresponding month, then adding the months together	Month one projected dollars: \$35,000 Month two projected dollars: \$30,000 Total projected dollars: \$65,000	Month one payments in sample x Month one sampling weight: $\$350 \times 100 = \$35,000$ Month two payments in sample x Month two sampling weight: $\$200 \times 150 = \$30,000$
7. Project total dollars in error from the sample to the universe by multiplying the dollars found in error in each monthly sample by the sampling weight for the corresponding month, then adding the months together	Month one projected dollars in error: \$5,000 Month two projected dollars in error: \$11,250 Total projected dollars in error: \$16,250	Month one payments in error x Month one sampling weight: $\$50 \times 100 = \$5,000$ Month two payments in error x Month two sampling weight: $\$75 \times 150 = \$11,250$
8. Estimate a payment error rate by dividing the projected dollars in error by the projected total dollars reviewed	Total projected dollars in error: \$16,250 Total projected dollars: \$65,000 Error rate = 25.0%	$\$16,250/\$65,000 = 25.0\%$