During fiscal year 2015, VBA revised its quality assurance program to reflect industry-standard best practices in statistical sampling and estimation. This document outlines the sample design, estimation procedures, and assessment criteria for VBA’s quality assurance program, STAR.

**Sample Design**

VBA estimates claims processing accuracy for each regional office (RO) and the entire nation. Within each RO, estimates are provided for different types of workload, including compensation rating, compensation authorization. Each RO and workload type combination is treated as a separate population, from which a sample is drawn independently. The sample design is a systematic stratified random sample, where the sample is stratified by RO and time-period.

Each sample must meet the objective of providing estimates within a 7.5% margin of error and 95% confidence limit for every 12 months of reviews. Sample sizes are determined for each RO and workload type combination. Previously, one formula was applied across all ROs and universally assumed a 0.80 proportion (i.e., 80% quality) of correct claims. Thus, each RO, regardless of size or proportion of correct claims, was given the same sample size. Using the formula, 246 cases for each sampling frame were sampled from each RO each fiscal year. To distribute the sample size and quality review workload throughout the year, the sample was divided equally over a 12-month period. This resulted in 21 cases sampled per month.

In January 2015, VBA implemented a new sample size formula that incorporated an average of the prior two fiscal years’ accuracy for each RO as an estimation for the Response Distribution and applied a finite population correction factor. The factor compensates for when the sample is a large portion of the population. By taking into account historical accuracy and workload, each RO has a different sample size.

During FY16, sample sizes were recalculated and accounted for the change in the sample design to a bimonthly sample selection instead of a monthly selection. Since several of the stations exhibited a margin of error greater than 5% during FY15, a more conservative formula was implemented during FY16. As before, the average of the two prior years of accuracy (FY14 and FY15) was used as an input to the formula; however, in the new calculation, when FY15 accuracy was lower than FY14, then just FY15 accuracy was used as an input to the formula. The new calculation also accounted for design effects. The design effect is the increase in variance due to unequal strata weighting, and the amount by which the sample size must increase.

During FY 19, VBA implemented three changes to its sample design for Compensation Service claims. First, sample sizes were recalculated to account for a change in the sample design from a bimonthly sample selection back to a monthly sample selection. Second, the formula determining sample sizes was adjusted to reflect a single-tailed vs. a two-tailed analysis as the quality results are a binomial event rather than a ratio-scaled distributed population (i.e., a claim is in error or it is not in error). Finally, as the effect of the National Work Queue has become more apparent regarding station of origin versus station of jurisdiction and work is no longer typically completed at the traditional station, a focus on VBA’s national quality has become more relevant compared to the RO. After reviewing the results of a MITRE study recommending a proportional allocation, VBA determined to maintain the stratification by RO but to allow the individual RO margin of error to widen to 7.5%. This change allows VBA to report its national accuracy with a high degree of reliability and a margin of error of less than 1.0%.

The formulas implemented include:

Formula 1. Stratified random sample[[1]](#footnote-2)

Where

n0 = annual sample size for an RO

Z = 1.645 (since a 95% confidence level is desired, the Z-score corresponding to 2 standard deviations for a single-tailed analysis, 1.645, is used)

E = margin of error (i.e., 7.5%)

Wj = monthly fraction of the annual total number of claims processed by the RO[[2]](#footnote-3)

Pj = Response Distribution[[3]](#footnote-4)

Qj = 1-p

Formula 2. Finite Population Correction Factor

n2= n0N/(n0 +(N-1))

Where

n2 = sample size adjusted for population size

n0 = sample size in formula 1

N = population size (i.e., RO workload size)

Formula 3: Design Effect

n3=n2 \* D

Where

n3 = Final sample size

n2 = sample size in formula 2

D = the design effect during the last fiscal year for each RO

The final sample size is divided among the bimonthly time periods. VBA will continue to periodically reassess sample sizes to account for accuracy and workload trends that may affect the sample size.

**Estimation Procedures**

From the sample, estimates are calculated for the proportion of claims that were completed accurately. Issue-based accuracy is also determined using the cases sampled in the claim-based sample design.

The results of the samples are combined to create a cumulative 12-month estimate of accuracy for each RO. Each RO estimate is also rolled into a national estimate. Monthly, 3-month, and quarterly results are also reported; however, at the RO-level, only the 12-month cumulative meets the objectives of the sample design for a 95% confidence level and 5% margin of error.

Sampling weights will be utilized in the final accuracy estimates and estimates of variance. Sampling weights shall be created to account for unequal probabilities of selection and will be derived using the probabilities of selection for each RO and bimonthly time period. Each claim in the sample shall be assigned a sampling weight. Sampling weights are calculated as the inverse of the selection probability.

The formula for sampling weights is as follows:

1/(n2/N)

Where

n2 = sample size, adjusted for population

N = population size

In addition to weighted estimates, the margin of error will be estimated and included in the reports. The margin of error may be derived using one-half of the difference between the upper confidence limit and lower confidence limit. To derive the upper and lower confidence limits, a complex formula is required. Lastly, for the estimates of issue-based accuracy, ratio estimation will be implemented to estimate both the total number of issues and the number of issues that are correct.

**Claim Based and Issue Based Quality Assessment Criteria**

Starting in October 2012, VBA began estimating accuracy of individual medical issues adjudicated within each disability claim. This accuracy estimate offers a holistic review of claims processing quality since one claim could have many issues associated with it. The creation of this new estimate resulted in two categories of VBA claim processing quality: claim-based accuracy and issue-based accuracy.

Claim-based accuracy and issue-based accuracy have the same “assessment criteria” for determining whether an error exists. The assessment criteria difference between the two is in the classification of the error, either as a benefit entitlement error or a corrective action comment.

For claim-based accuracy, a benefit entitlement error is called only if the error affects or has the potential to affect the Veteran’s entitlement to benefits (not simply a financial change; this also includes entitlement to service connection). If the error does not affect entitlement to benefits (i.e., an incorrect effective date is within the same month as the correct effective date), it will be recorded as a corrective action comment.

For Issue-based accuracy, a benefit entitlement error is called regardless to whether the Veteran’s entitlement to benefits is affected or potentially affected. In the above example, an effective date error that does not affect payment will be recorded as a benefit entitlement error under issue-based accuracy, not a corrective action comment. It should be noted for issue-based accuracy, each individual decision associated with the claim is assessed separately. Every issue claimed by the claimant or inferred would constitute a separate issue for review, as would the award action.

Both review types are conducted on each case for national quality review. All benefit entitlement errors and corrective action comments require corrective action.

VBA’s claim-level accuracy rate is determined by dividing the total number of cases that are error-free by the total number of cases reviewed. VBA’s issue-based accuracy rate is determined by dividing the total number of issues that are error-free by the total number of issues reviewed.

When evaluating the accuracy of a ten-medical issue claim, the claim will be considered 0% accurate under the claim-based accuracy criteria if one issue was incorrectly adjudicated. That same claim will generate 90% issue-based accuracy for those 10 issues since nine out of 10 issues were properly adjudicated. As a result of the two different accuracy criteria and calculations, the issue-based accuracy will result in higher accuracy rates compared to the claim-level accuracy rate.

1. This formula is provided in GAO’s *Veterans’ Disability Benefits: Improvements Could Further Enhance Quality Assurance Efforts* (Publication No. GAO-15-50), p. 32. Inputs to this formula have been modified by VBA to incorporate greater, long-term sampling based on fiscal year-over-year performance and the binomial factor in claim review metrics (i.e., a given claim/issue is either processed correctly or incorrectly). [↑](#footnote-ref-2)
2. The annual total number of claims processed by the RO for the upcoming fiscal year is estimated based on the average of the previous two-years production. [↑](#footnote-ref-3)
3. The Response Distribution is estimated by taking average quality of each RO over the last 2 fiscal years with the caveat that, if the latter fiscal year’s quality is lower, then the lower fiscal year’s quality is used as the Response Distribution. [↑](#footnote-ref-4)