

## Interpretation of Performance

Performance is monitored over a rolling set number of distributions (the number of distributions included in the cumulative performance analysis is scheme dependant).

The system checks to see if there are 10 or more laboratories in your country participating; if there are, all the calculations are performed on data from laboratories in your country. If there are less than 10 laboratories participating then the calculations are based on all laboratories.

In the Cumulative score information box on page one of your report you will see the text:

Your cumulative score for the specimens/test combinations that you reported was X out of a possible Y.

The mean score calculated from the reports returned by 'Your Country' laboratories testing the specimen/test combinations you examined was Z with a standard error of K.

The standard error (K) is the standard deviation of the mean score for that specimen/test combination and just shows how much variability there is with the scores obtained by the laboratories.

To see how well you are doing you need to look at your cumulative score X and the mean score Z.

If X is greater than Z you are doing better than average for your country for that specimen/test combination.

### Performance Rating (PR):

PR enables laboratories to quantify how much better or worse their performance is compared to other laboratories. This is a method of ranking. PR is the number of standard errors your score lies above or below the mean performance for the laboratories in your country examining the same specimens and is calculated using the formula:

$$\frac{(\text{Cumulative score of lab (X)} - \text{Mean cumulative score of all laboratories for the same specimens (Z)})}{\text{Standard error of mean cumulative score of all laboratories for the same specimens (K)}}$$

Therefore you could have a record of very good performance and a high PR if the average score for laboratories is low, then in the following distribution if the average performance of laboratories is high and similar to your performance your PR may drop.

A performance rating of more than 1.96 standards deviations below the mean indicates possible poor performance.

Please see page 2 for an explanation of how the scores are calculated for an individual laboratory.

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The system looks for:

Scores for the specimens (that have been scored\*) that your laboratory has received.

The mean score for each specimen and analyses each of the possible results for the specimen.

\*Specimens for which you have reported 'Not Examined' or failed to return before the distribution closing date are not scored and therefore excluded from the calculations. Laboratories failing to return reports are monitored; UK laboratories failing to return results may be considered potential poor performers and referred to the National Quality Assurance Advisory Panel.

The laboratory performance statistics are then calculated:

The total score for the individual laboratory in that series ([this is your cumulative score, X](#))

The total possible score for the series of specimens ([Y](#))

The mean score for each specimen (the sum of scores/number of laboratories scored) ([M](#))

The mean score for series of specimens (the sum of the mean scores for each specimen) ([this is the mean score, Z](#))

The standard error is calculated as follows

For each specimen:

$$D = (2-M)^2 \times \text{number of laboratories scoring 2}$$

$$E = (1-M)^2 \times \text{number of laboratories scoring 1}$$

$$F = (0-M)^2 \times \text{number of laboratories scoring 0}$$

$$G = (-1-M)^2 \times \text{number of laboratories scoring -1}$$

$$H = (D+E+F+G)/\text{number of laboratories scored}$$

I = sum of H for all specimens

J = square root of I

K (the standard error of the mean score) =  $J+0.5$  (0.5 is a continuity correction applied because the data are discontinuous).

[Performance rating](#) =  $(X-Z)/K$

This is the number of standard errors the participant's score is above or below the mean.