INTERPRETATION OF THISTLE STATS

We recommend wherever possible that you use the Instrument Statistics on our report. This gives you the most appropriate set of comparative results for you to assess your own result against. Of course, if the data base is too small or the SDs too wide, even this set of results might not be very useful. And it might be meaningless to compare yourself to the Method Statistics. Give us a call and we'll see if we can help.

If you own organisation has protocols, then please follow them.

What is beneath is a set of guidelines for those unsure how to interpret our reports; or those without clear protocols; or those being hassled by assessors. At all times, though, an EQA result that looks "out of control" in any way, demands action. And that action might be to note it, fill in an action sheet of some sort, perform an examination of the report's statistics or have a good look at your Internal QC. After this type of scrutiny, you may decide to live with what you see. And as long as your interpretation is appropriate then that's okay.

Acceptable but outside 2 SDs

And how do you interpret the situation where you are outside the so-called-magical +/- 2 SDs but the clinical CV gives you an A for acceptable? This is one of our most common queries.

The clinical CV, or Acceptable Range, was added to the reports many years ago because some of the SD's were becoming seriously tight. Now, that sounds good but there is an issue lurking here. It doesn't matter how many results are in a data base, or how close they all are, the fact remains that 5% of labs will be told they are outside +/- 2 SDs – even if the difference between their result and the mean is insignificant. By definition, +/- 2 SDs includes 95% of results! Some of the new generation of analysers give very tight SD's, which is good for you and the patient BUT 5% will still be out of the 2 SD range. And this is irritating but inevitable.

So, if you get the above situation, look at the actual figures in the report. Work out how far you are from the mean and if it insignificant (and you should know what that means, but if not look at the ranges you use for internal QC and assess it that way) then write that down on your action sheet or wherever your SOPs tell you to log potential problems or non-conformances, and move along.

The other thing to do is look at the classification according to our Clinical CVs. These were established with international help from Biological Variation (BV) and some help from the US Regulation, CLIA'88. The point was to give you another way to assess your performance on an EQA and our "standards" are very similar to standards used by EQA Scheme Coordinators worldwide. Basically they are performance standards, suggesting that as long as you get A for Acceptable, then your performance is acceptable.

So, if you are outside 2 SD's but consistently inside the Clinical CV – meaning all A's on your report and no P's – then you are doing just fine UNLESS of course, all your dots on the Levey-Jennings Chart on the EQA are well out of control, beyond +/- 3SDs, in which case you are in the poorest 1% of labs, definitely a cause for action!

Inside 2 SDs and A for Acceptable BUT consistently biased

If you find your results always on one side of the mean, but always within 2 SDs and Acceptable, pause and look at the real results. If you are Acceptable, it means you are not sending out clinically poor results; and being inside 2 SDs means you are NOT in the poorest 5% of results.

This MIGHT be a case for doing nothing. It depends on the size of your bias, the validity of the data base, and which analyte it is.

Summary

Follow your own protocols when you have a problem.

This document is intended to highlight why we have two systems of assessing your performance, and how to use them when the SD's tell you that you have a problem, and the Clinical CV suggests otherwise.

Statistics give you valuable information – and very few facts. That information has to be interpreted before you can use it. You obviously must flag any result "out of control" for investigation, otherwise you are not using your statistical information correctly.

Contact us at Thistle QA if you want to discuss any aspect of this document, or have any other queries relating to the use of our reports.

Dr Jim McCulloch

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