



# IFM Biological Customer Survey Highlights

IFM conducted a satisfaction survey of its biological proficiency testing customers.

Over 70 participants responded.

The satisfaction rate was greater than 80 percent for all questions asked.

As a result of the survey, IFM has identified several areas where services can be enhanced to better meet the needs and interests of our customers.

Examples of enhancements include:

- Inclusion of a regular cosmetics PT for pharmaceutical testing laboratories
- Operation of a second round of XNP (including spore counts and *E. sakazakii*) each year

- Inclusion of the median log of the counts on the individual results sheet.
- Inclusion of a *Clostridium* detection test in the suite of tests for Chinese medicine.
- Presentation of samples with lower bacterial levels to better mimic levels in natural water (CSP program)
- Change in sample presentation to increase the total sample volume. Therefore, more participants in the same laboratory can join the same round of CSP.
- A further survey will be conducted to determine the feasibility of developing additional matrix specific samples (eg shellfish, sea water.)
- Feasibility study for inclusion of additional test parameters requested by respondents.
- Change of dispatch date for overseas participants for earlier delivery, which will allow these participants similar time frames for analysis as local participants.
- More assistance for participants required to perform follow up activities. This news letter also contains suggestions for performance of follow up activities

## Proficiency Testing Outliers

Did you know that more than 70% of outlying results could be due to non-technical errors?

Typical non-technical errors are typographical. For example, reporting the results for two samples in reversed sequence or reversing numbers in a string.

Transcription errors also account for a large percentage of incorrect results.

The next most common errors are related to number presentation, for example, placement of the decimal place, incorrect units of measurement and simple calculation errors.

In programs involving multi-step analysis, frequently, a mis-reported result from a previous step is inadvertently used as the basis for the next step in the process.

Raw results are also often reported instead of calculated results.

Clearly, such simple mistakes can be avoided by taking a little extra care with data collection and management.

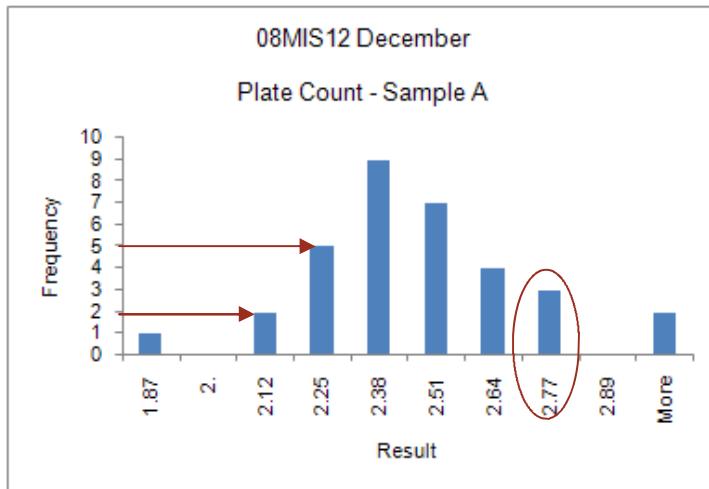
*More than 70% of errors are due to non-technical problems*

# How do my results compare?

Quantitative PTP results are usually presented in a summary format via a histogram. It is easy to determine where an individual laboratory's result lies by comparing the bars on the histogram with the result obtained.

Histograms depict the number of results in each group using bars. The label on the horizontal axis of the histogram shows the upper limit of the results included in the bar. The vertical axis shows the number of results (or "frequency").

For example, the histogram shown on this page indicates that 2 results were



greater than 2 and less than or equal to 2.12, while 5 results are greater than 2.12 and less than or equal to 2.25.

If, for example, a laboratory reported a

result of 2.67, this would be included in the circled bar. (Since 2.67 is greater than 2.64 and is less than or equal to 2.77.) One can also see from this chart that a result of 2.67 is higher than those reported by the majority of participants.

Please note that the conventional statistical presentation of microbial counts is by logarithms. To successfully compare the position of an individual result on a histogram for a microbiology program, it is necessary to take the base 10 logarithm of the final count. The individual reports of results issued by IFM show the logarithm transformed counts.

## 10 Simple Steps for PT Outlier Investigation

1. Check that the result obtained is actually the result that was reported in the PTP.
2. Double check that the testing instructions were followed.
3. Re-check all calculations performed.
4. Check the sample receipt records to ensure the samples were received in undamaged state.
5. Check that the results obtained from any control tests or tests on reference materials performed in conjunction with the sample yielded the correct (expected) results.
6. Verify that equipment used to perform the test was functioning appropriately and that any relevant equipment calibrations were in order.
7. Check the ongoing suitability of reagents. Often when a reagent is close to the end of its useable life, the results obtained become statistically less reliable. This can occur prior to laboratory staff rejecting the reagent outright. (The use of control charts can effectively monitor such changes in reagents and provide pre-warning that reagents should be replaced.)
8. Evaluate the results of on-going duplicate testing, or testing performed by multiple operators.
9. Review the environmental conditions from the testing day, checking for anomalies that could have influenced the test result.
10. If additional material is available for re-testing, perform a retest. This is clearly more effective if there is an awareness of any changed laboratory/reagent/equipment conditions

*Often, one never finds out what went wrong, but adherence to section 5.9 of 17025 can increase confidence.*

It should be noted that the reasons for an aberrant result are often not elucidated. Confidence in the accuracy of other test results can be increased by monitoring the results of reference materials and other quality assurance practices outlined in section 5.9 of ISO/IEC 17025.