INTERNATIONAL VETERINARY
Proficiency Testing Centre

Participant Guide

International Veterinary Proficiency Testing Centre
Atlantic Veterinary College, UPEI, 550 University Ave., Charlottetown, PE, C1A 4P3

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This document contains information on policies and instructions that apply to the International Veterinary Proficiency Testing Centre (IVetPTC) proficiency program administered by the Diagnostic Services Department at the Atlantic Veterinary College.

NOTE: This document may be revised without notice. Printed copies are uncontrolled and may be out of date. Content in the online version is to be considered the most up to date.

1.0 Criteria for Participation

The IVetPTC proficiency program is available to any veterinary laboratory interested in, or required to participate in, a Proficiency Testing (PT) Program.

2.0 Introduction

The IVetPTC proficiency program is an inter-laboratory veterinary proficiency testing (PT) program administered by the Diagnostic Services Department at the Atlantic Veterinary College (AVC) of the University of Prince Edward Island (UPEI). It is specifically designed for veterinary laboratories and hospitals that perform laboratory testing and require an external confidential means of comparing internal test results to those of their peers in the veterinary laboratory field.

Proficiency test kits are shipped at the beginning of each testing quarter. Clients have up to three weeks to test and submit results via our secure web-based system (ivetptc.com). The quarterly test results are statistically analyzed and evaluated. After analysis, PDF-generated reports are made available on the website for performance review and anonymous comparison to all other participants. The number of participants varies for each module.

3.0 Modules

Participants of the program may subscribe to any combination of the available modules, customizing the program to meet the needs of their organization. Subscriptions include one to four proficiency testing kits released quarterly in February, May, August, and November. Participants can subscribe starting at any testing quarter during the year. The following testing modules are currently being offered:

- Aquatic Bacteriology
- Bacteriology
- Chemistry
- Cytology
- Endocrinology
- Hematology
- Hematology Exotics
- Mammalian Histopathology
- Serology
- Parasitology
- Therapeutic Drug Monitoring
- Urinalysis

For more information, please see our **Customer Order Form** (PTP-F-001) available at ivetptc.com

Pricing is reviewed and updated annually. Changes are communicated to clients via email.

4.0 Preparation and Verification of PT Materials

The PT materials are prepared in our laboratory or by an external subcontractor following ISO/IEC 17025:2017 and/or ISO/IEC 9001 standards. Homogeneity and stability testing is conducted in accordance with relevant requirements of ISO/IEC 17025. The PT materials are stored at appropriate temperatures until shipped to the participant.

5.0 Order Instructions

The most up-to-date order form is available on the website at ivetptc.com. The completed form must be returned by email or fax, as indicated on the order form. Order processing times vary depending on the cycle. All new order forms must be submitted 5 weeks prior to the subsequent cycle shipment date to ensure processing is completed on time. New clients may contact IVetPTC for this deadline. Renewal orders must be submitted by the deadline provided by IVetPTC in the renewal email.

5.1. Laboratory QC ID Number

Upon processing of the order form, each client is assigned an Identification Number (QC ID #). Current or previous clients should list the previously assigned QC ID # on the order form. When corresponding with IVetPTC, clients must include their QC ID #.

5.2. Additional Instruments and or/Pathologists

Clients may enroll multiple instruments and/or Pathologists within their organization. Each additional instrument or pathologist requires an additional order form and unique QC ID #.

5.3. Ivetptc.com

Ivetptc.com is a web-based program designed for providing instructional worksheets, submission of results and viewing finalized reports. Login details are provided to the client via email, upon processing of the order form. The provided password may be changed upon the first login. Forgotten passwords can be recovered by following the “Forgot Password?” link and directions, or by contacting IVetPTC.

5.4. Client Declaration

By submitting an order form to IVetPTC, the client acknowledges that they have read and understood the policies in this document. The client is responsible for informing the International Veterinary Proficiency Testing Centre of any change to their contact information, laboratory operation status, or shipping address. The client authorizes IVetPTC to send communications to the email and mailing address provided on the order form. The client understands that the material requested from IVetPTC may contain pathogenic material. The client assumes all risks and responsibility in connection with the receipt, handling, storage, use, and disposal of the material. All samples are to be handled, analyzed and disposed of in accordance with the laboratory’s internal protocols for handing diagnostic samples.

5.5. Biohazardous Agent Transfer (BAT) Forms

To subscribe to the IVetPTC Bacteriology Modules (VETM1 and/or VETM2) a Biohazardous Agent Transfer (BAT) Form must be completed. If this is applicable to the product ordered, instructions and a list of potential microorganisms will be provided. If the BAT form is not

completed and submitted by the deadline provided in the emailed instructions, the order cannot be processed.

5.6. Updating Testing Parameters

Clients may change instruments, methods, or units at any time during a testing quarter. This information can be entered and updated when reporting results on the website. Clients must ensure all testing parameters are up to date and accurate before the submission of any result. Entering incorrect instrumentation will impact the peer group to which the results are compared. The testing parameters cannot be updated or modified once the testing quarter has closed. If a testing parameter is not listed on the worksheet drop down menu, please contact IVetPTC via the "Contact Us" link. For convenience, selected and/or modified parameters previously entered and submitted will carry over and automatically populate any future testing quarter worksheets. Periodically, pre-defined criteria will be cleared from the website to prompt users to confirm/update any instruments or methods used in their analysis.

6.0 Shipping and Receipt of Proficiency Test Kits

Please inform IVetPTC of any change in contact details or laboratory operation status as soon as possible.

For clients outside of Canada and the United States, it is required that each laboratory obtain and provide the appropriate import permit(s) and/or shipping instructions for customs and shipping purposes if applicable.

6.1. Scheduled Dates

The projected shipping dates are found in the bulletin section of ivetptc.com homepage and are updated prior to each testing quarter. Please note that these shipment dates may be subject to change. By end-of-day on the shipment date, the participant will receive an auto-generated email provided by the courier with the tracking information. If you do not receive this email, please contact IVetPTC customer service (see section 15.6 for Contact Information).

6.2. Shipment Delays

Proficiency test kits may be subject to Customs inspections resulting in clearance delays. Packages may also be delayed due to courier service interruptions or inclement weather. The shipment status of all packages is monitored, and where possible, all efforts are made to ensure that packages are stored appropriately until the delay is resolved.

6.3. Delivery

Upon receipt of the PT kits, the contents must be examined to ensure nothing is damaged and that the samples match the list on the included packing slip. If the order is incorrect or damaged, contact IVetPTC immediately. If IVetPTC is not contacted within two business days from the date of delivery, replacement samples may not be provided.

6.4. Storage

The samples must be stored as per the temperatures listed on the samples.

7.0 Testing of Samples and Submission of Results

The worksheets for each module contain detailed preparation instructions and instructions for use. These can be downloaded from the ivetptc.com website. Preparation instructions must be carefully

followed for each sample on the worksheet. Requests for replacement samples due to errors in preparation are subject to a standard replacement fee and are subject to IVetPTC's discretion.

7.1. Creating Worksheets

Once signed in to the IVetPTC website, clients can create worksheets by selecting the dropdown box labelled "Submit New Worksheet". This dropdown list displays all of their subscriptions. Each worksheet will contain the preparation and use instructions and submission boxes to enter results. Once created, these worksheets will be saved under the "Submissions" tab.

7.2. Submitting Results

All samples must be processed as if they are routine samples, using the laboratory's current test methods. After the sample is processed, results are entered on the previously created worksheets. The required significant figures for reporting results are listed in the instructions of each worksheet. **NOTE:** If a specific instrument or method is not listed, please contact IVetPTC. After the results are entered, select "preview" to review. If acceptable, select "save and submit" to submit results. The final submission can be found under the "submissions" tab. Please test the samples and submit results prior to the strict deadline provided in the IVetPTC communications and listed on the website bulletin.

7.3. Late Results:

When the testing quarter has closed, any result(s) not entered will not be accepted. The submission deadline includes sufficient time to allow for shipping delays.

8.0 Data Analysis and Interpretation of Results

8.1. Raw Data Review

A review of quantitative data is initiated immediately after the submissions have closed. The initial raw data review is performed to identify data that may have resulted from an incorrect entry, i.e., a decimal error or incorrect data placement. This review identifies results far outside of the normal distribution (Section 8.2). Such data shall be referred to as erroneous results.

When appropriate, clients will be contacted and given the opportunity to confirm or correct their data. Note: the sample is not to be tested again. The value under investigation is to be reviewed for entry errors only.

An option to amend the submission may be considered for the following reasons:

- Incorrect units reported.
- Incorrect conversion factor used.
- Transcription error.
- Any other reasons believed appropriate by program coordinator.

Any of these outliers deemed to be correct by the corresponding laboratory will be left in the population for the data analysis step (Section 8.3). If there is no response from the corresponding laboratory with regards to the outlier, the result in question will also be left in the population.

Modules that require a clear and concise diagnosis (qualitative results) will be marked by comparison with the results of peer submissions. The most popular response will be credited as the benchmark as determined by the peer group.

8.2. Identifying and Removing Erroneous Results Greater than ± 3SD

Once the raw data is reviewed visually for identification and removal of extreme outliers, a 3SD screen will be used to identify remaining erroneous data. Data points outside of the 3SD screen are considered erroneous results. When appropriate, clients will be contacted and given the opportunity to confirm or correct erroneous data following the 3SD screen. Following correction of any data points, a second 3SD screen will be applied to the data set. When appropriate, these clients will be contacted and given the opportunity to confirm or correct erroneous data following the 3SD screen. Any erroneous results that remain outside of 3SD will be removed from the data set before further analysis. Erroneous results are flagged on the report with a Red X (**Figure 1)**. They will not be included in the analysis or final reported data. The remaining data (within ± 3SD) will be analyzed and used to evaluate performance.

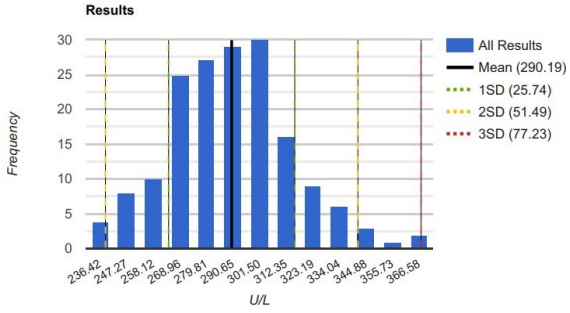
Figure 1: Identification of an Erroneous Result

Alk.Phos

Component	Sample	Last Evaluated	Units
Alk.Phos	2022-4A-CHEM-Canine	2023-01-18 10:40:24	U/L

Your Result	604.00 U/L
Omitted	✖ *Extreme Outlier*

**Extreme outlier data points are not graphed **



Description	N	Mean	2SD	CV%
All Results	170	290.19	51.49	8.9
Your Method PNPP with DEA as buffer	0	0.00	0.00	0.0
Your Instrument Elitech Selectra XL	0	0.00	0.00	0.0

**Extreme outlier data points are not used in the final data **

8.3. Final Data Analysis

After the erroneous results are removed, the remaining data set is assessed on its performance using the new data set's standard deviation. The remaining data within ± 3SD is visually displayed on graphs for quick interpretation. 1SD, 2SD and 3SD bars enable quick reference to see where each participant result falls. All results within ± 2SD will be indicated with a green check mark. An example is illustrated in **Figure 2**. Results outside ± 2SD are considered outliers and will be identified with a yellow caution symbol as displayed in **Figure 3**.

Figure 2: Results within +/– 2SD

Sodium

Component	Sample	Last Evaluated	Units
Sodium	2022-4A-CHEM-Canine	2023-01-19 10:03:17	mmol/L

Your Result 139.84 mmol/L ✔

Description	N	Mean	2SD	CV%
All Results	175	139.84	7.32	2.6
Your Method ISE-diluted	129	140.03	6.83	2.4
Your Instrument Olympus/Beckman AU-400-480/AU-600-680	67	139.67	7.31	2.6

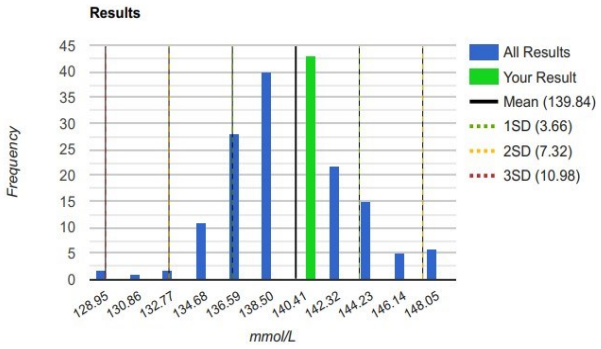


Figure 3: Results outside of +/– 2SD

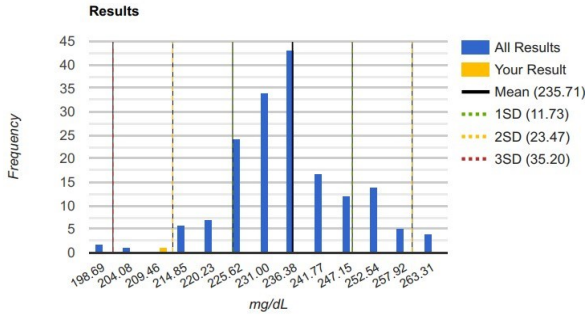
Cholesterol

Component	Sample	Last Evaluated	Units
Cholesterol	2022-4A-CHEM-Canine	2023-01-18 10:52:56	mg/dL

Your Result 207.00 mg/dL ! Outlier

Description	N	Mean	2SD	CV%
All Results	170	235.71	23.47	5.0
Your Method Enzymatic	137	236.33	20.04	4.2
Your Instrument Olympus/Beckman AU-400-480/AU-600-680	65	237.81	23.66	5.0

** Result is outside of 2SD **



The breakdown section of the reports includes an extra column to identify how many results are removed from the data set. There is also a column to identify how many results were considered outliers and fall outside the limit of ± 2SD. **Figure 4** illustrates how this will be displayed on the final report.

Figure 4: Breakdown Section with Additional Column

Phosphorus

Component	Sample	Last Evaluated	Units
Phosphorus	2022-3A-CHEM-Canine	2022-10-06 10:05:19	mg/dL

Breakdown by Method / Instrument	No. Labs	Mean	2SD	CV%	Outliers > 2SD	Extreme Outliers > 4SD Not Included
All Data and Outliers	165	4.85	0.48	5.0	4	3
Colorimetric						
AMS Liasys 330-450	1	6.20	0.00	0.0	1	-
Dade Dimension XL/RXL	1	4.90	0.00	0.0	-	-
Olympus/Beckman AU-400-480/AU-600-680	5	4.93	0.17	1.7	-	-
Dry chemistry						
Heska DRI-CHEM	2	5.05	0.50	5.0	-	-
IDEXX Catalyst	3	4.82	0.54	5.6	-	-
Vitros 250-950,4600	6	4.90	0.34	3.5	-	-
ICP & TCA precipitation						
ICP instrument	1	5.30	0.00	0.0	-	-
Phosphomolybdate						

8.4. Modules with Less than 20 Submissions

Modules that contain fewer than 20 submissions (n<20) after the data analysis will instead display the median value and no assessment on standard deviation will be made. **Figure 5** illustrates an example of this.

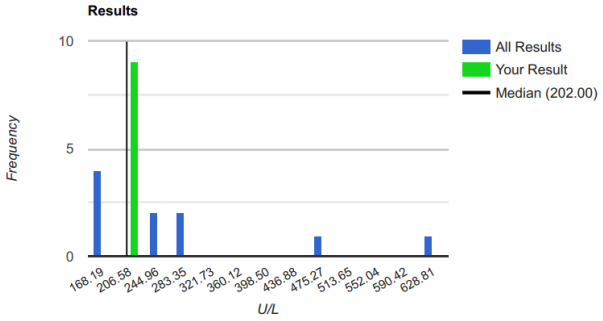
Figure 5: N<20 reporting

LDH

Component	Sample	Last Evaluated	Units
LDH	2022-4C-CHEM-Lapin	2023-01-18 12:10:11	U/L

Your Result 205.00 U/L

Description	N	Mean	Median
All Results	19	241.71	202.00
Your Method Lactate-pyruvate,NAD,TRIS	2	216.50	216.50
Your Instrument Roche Cobas C111,311/501,8000	4	186.75	196.50



Summary of Data Analysis:

- Results are submitted to IVetPTC.
- Results are visually reviewed to identify apparent erroneous results outside of the normal distribution.
- Apparent erroneous values are discussed with submitting laboratory and may be removed as erroneous results.

- A 3SD screen is applied and results outside of 3SD are discussed with the submitting laboratory and may be removed as erroneous results.
- A second 3SD screen is applied and results outside of 3SD are discussed with submitting laboratory and may be removed as erroneous results.
- Any erroneous results outside of 3SD are removed.
- Remaining data is analyzed.
- Results within 2SD are labelled with a green check mark.
- Results outside of 2SD are labelled outliers with a yellow caution symbol.
- Results considered erroneous or extreme outliers are labelled with a red X.
- Modules with fewer than 20 participants (n<20) will display median values only.

8.5. Why 2SD?

In normal statistical distributions, results will usually fall close to the mean. Typically, 68% of all results will fall within the first standard deviation, 95% will fall within the second standard deviation, and 99.7% will fall within the third standard deviation. Results are assessed using two standard deviations (2SD) to provide a 95% confidence interval.

8.6. Bimodal Populations

During the data review, the data is plotted and inspected for the appearance of a bimodal population. If the data submitted appears to be bimodal in nature, further investigation is conducted to determine if there are clear subgroups of the population. Client results in these subgroups will be compared to their peers within the subgroup, then compared to all participants in the module. For any subgroup where n<20, the assessment will be based on the median value only.

9.0 Release of Reports

When the analyzed reports and clinical case reviews are available, an email notification is sent out to all clients. To access the reports, clients must log on to the website and select the reports tab. To access clinical case reviews, clients must log on to the website and refer to the Bulletins section on the main page.

If there is no report available to view, please confirm that a submission was made for that module. If a submission was made and there is no report, please contact IVetPTC.

9.1. Amended Reports

If a previously released report requires an amendment, a new report will be released. This new report will include a unique identifier, reference to the original released report, and a reason for the amendment. Participants will be notified if an amended report is required.

10.0 Clinical Case Reviews

Modules that require identification or a diagnosis will be marked by comparison with the evaluation of their peers. The most popular response will be credited as the consensus and is determined by the peer group. A supplemental clinical case review may be provided indicating the diagnosis with further workup, e.g. flow cytometry, if applicable and available.

11.0 Use of Reports and Statement of Confidentiality

11.1. Report Confidentiality

The contents of this report are confidential and may not be reproduced, published, or redistributed in whole or in part without prior written consent by the Director of Diagnostic Services, Atlantic Veterinary College, UPEI. Participating laboratories are identified by instrument and method only. Participants' identity and information will be kept strictly confidential by the proficiency program. This report has been produced with the utmost care, however, IVetPTC does not accept liability for any claims based on the contents of this report.

11.2. Identity of Participants

The identity of participants in the IVetPTC programs will be kept confidential and known only to personnel involved in the operation of the proficiency program. All information provided by clients of the program will be treated as confidential. Participants can elect to waive confidentiality for the purposes of discussion, or for regulatory or recognition purposes.

11.3. Release of Information

When IVetPTC is required by law or authorized by contractual agreements to release confidential information, the client concerned shall be notified of the information released, unless prohibited by law.

12.0 Collusion and Forgery

Participation in International Veterinary Proficiency Testing Centre programs and all client data and correspondences are strictly confidential. Sharing, discussion, or comparison of results with other clients is prohibited. A participant or result may be disqualified if collusion or forgery is suspected.

13.0 Certificates of Participation

Certificates of Participation are provided once a year for the successful completion of modules for the previous year.

14.0 Sub-Contracting of Services

Aspects of the proficiency program are sub-contracted. IVetPTC ensures that the sub-contractors are competent and follow ISO 17025 and/or ISO 9001 standards. IVetPTC accepts responsibility for all sub-contracted work.

15.0 General and Administrative Information

15.1. Changes to Schemes

Clients will be promptly notified by email if they will be affected by any major changes to PT schemes, including the addition of analytes, additional rounds, scheduling, etc. This notice will also be available in the form of a bulletin on the ivetptc.com website.

15.2. Complaints

Contact the IVetPTC Coordinator or the IVetPTC Technical Support regarding any complaints or comments about a PT scheme.

The IVetPTC complaints process includes:

1. Acknowledgement of the complaint.
2. Investigation.
3. Action to resolve complaint.
4. Follow-up with the customer.
5. Documentation and analysis of trends.

15.3. Complaints Concerning Evaluation of Results

If a client disagrees with their evaluation of results, they can contact us through the contact portal on the ivetptc.com website or by email.

The complaint will be addressed following the steps listed in section 15.2. The basis for the client complaint will be discussed among IVetPTC personnel, the QA Manager, and the Director. The outcome of the discussion will be communicated to the client and acted upon accordingly.

15.4. Refunds

All subscriptions are non-refundable. Refunds are not issued under any circumstances.

15.5. Business Hours

Customer service and technical support regarding the program is available weekdays from 8:30 a.m. to 4:30 p.m. Atlantic Time, except on statutory holidays.

15.6. Contact Information

Telephone: 902-566-0990/902-620-5014
Fax: 902-566-0861
E-mail: IVETPTC@upei.ca

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IVetPTC Quality Assurance Manager: Jocelyn Phillips

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IVetPTC Director: Elizabeth Dobbin

E-mail: edobbin@upei.ca

16.0 References

1) ISO/IEC 17043: 2023, *Conformity Assessment-General requirements for proficiency testing,* ISO, Second edition, 2023-05.

2) ISO/IEC 13528: 2005, *Statistical methods for use in proficiency testing by interlaboratory comparison,* ISO, Second edition-corrected version, 2016-10-15.