



Canadian  
microbiology  
proficiency  
testing

## **ANNUAL REPORT** **April 2022 to March 2023**

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Innovation • Education • Quality • Assessment • Continual Improvement



**THE UNIVERSITY OF BRITISH COLUMBIA**

**Canadian Microbiology Proficiency Testing Program (CMPT)**

— Established 1982 —

*ISO 9001:2015 Certified (Intertek), Initial Registration 2002*



**CERT-0102326**

*ISO/IEC 17043:2010 Accredited (A2LA), Initial Registration 2015*



**Certificate no. 3749.01**

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## I. QUALITY POLICY

CMPT's Quality Policy is the framework for the regular establishment and review of quality objectives.

- CMPT is a university based, peer directed program, that provides Innovative External Quality Assessment (EQA) for microbiology laboratories.
- By providing our customers with our best products and services, we support them providing their best for public and patient health and safety.
- Our vision is to be recognized provincially, nationally, and internationally as a valued contributor of EQA innovation, education, and as passionate advocates for continued quality improvement in EQA for the benefit of healthcare, our participants, and our programs.
- CMPT is committed to our employees by recognizing their importance to the operation and in maintaining our positive relationships with all our volunteers, customers and stakeholders.
- CMPT is committed to its Quality Management System, and regular review for continual improvement of its effectiveness.
- CMPT is committed to achieving maintaining international accreditation the requirements of ISO 9001 and ISO 17043.
- CMPT is committed to regular review of its Quality Policy to ensure its suitability to the program.

## II. STAFF (Alphabetical order)

Shadi Alami, MSc.....Technologist  
Peter Davoust, BSc.....Marketing and Communications Assistant  
Denise Hilker, B.A.Sc. ....Program Assistant  
Esther Kwok, BSc, RT, CLQM .....Coordinator  
Caleb Lee, MHA, BMLSc, CLQM .....Senior Technologist  
Lucy A. Perrone, MSPH, PhD .....Chair and Managing Director  
Veronica Restelli, MSc .....Web Manager and Editor  
Mahfuza Sreya, BMLSc .....Technologist  
Selvarani Vimalanathan, PhD.....Research and Development Lead, Virology  
Ellie Wong, MLT.....Technologist

## III. CHAIR'S REPORT

### MISSION, VISION, VALUES

#### Our Vision

Our vision is to be recognized provincially, nationally, and internationally as a valued contributor of EQA innovation, education, and as passionate advocates for continued quality improvement in EQA for the benefit of healthcare, our participants, and our programs.

## Our Mission

Our mission is to provide our customers with the very best products and services to support microbiology testing quality and to support their work fostering patient care and ensuring public health and safety.

## Our Values

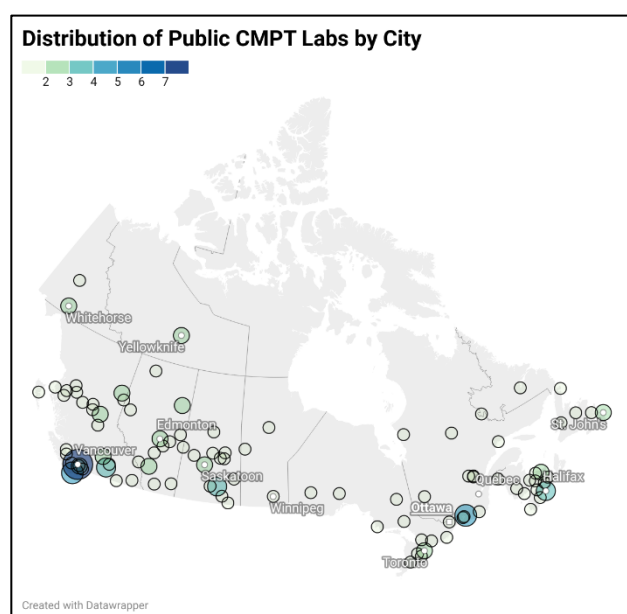
Our values define us as an organization and continue to influence our goals toward achieving our vision. Our values are:

- Innovation
- Education
- Quality Assessment
- Continual Improvement

## ORGANIZATIONAL PERFORMANCE

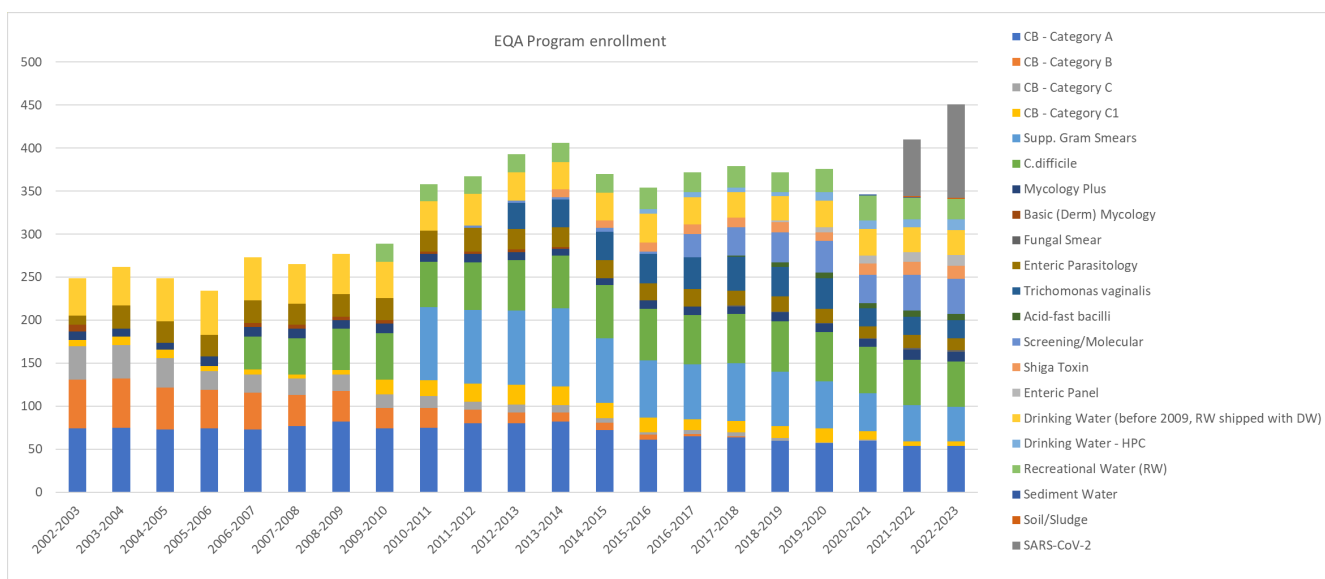
Created in 1982, CMPT has stayed rooted in the UBC academic environment consistently practicing its values of Innovation, Education, Quality Assessment and Continual Improvement. For over 40 years, CMPT has been custom formulating clinically and environmentally relevant proficiency testing (PT) challenges for microbiology laboratories, and pivoting to meet their needs when their diagnostic methods change.

Our customers include health and environmental testing laboratories and point of care testing sites located across Canada and the world (see maps below). This includes subscribers from 4 countries in 3 regions of the world.



CMPT continues to grow in the areas of public health and safety while maintaining our strong roots in clinical care. CMPT continues to perform well as a small, not for profit organization as evidenced by a growing portfolio and revenue streams.

2022-23 was a historic year for program enrollment and revenue for the organization (see graph below). While largely due to a peak in COVID-19 EQA subscriptions, long standing programs sustained their enrollments and some grew incrementally.



CMPT maintains a vast organism library thanks to our long-standing clinical partnerships, and we are well positioned to make a variety of EQA challenges, for a variety of customers. Towards this goal, in 2023 CMPT launched a cannabis microbiology EQA program and expanded its virology portfolio to include other clinically relevant respiratory viruses such as Respiratory Syncytial Virus and Influenza A/B. These new programs will take time to grow in enrollment but these and all of our EQA schemes will benefit from the additional resources we have put towards marketing and promotion this year.

I applaud CMPT's achievement to maintain a healthy balance sheet, staying true to our educational values, maintaining prestigious international accreditation, and for growing our quality improvement programs.

Our people make our programs, and our customers illuminate the path.

Thank you to everyone at CMPT for a successful 2022-23 program year.

## I. ADMINISTRATION AND OPERATIONS

### a. CMPT Staff

#### i. Employees

We are thankful for our laboratory and administrative staff, expert committee member volunteers, our medical advisory board and all of partners who provide critical materials and guidance.

This year we welcomed Mrs. Ellie Wong as a staff technologist and Mr. Peter Davoust to our roster as a Communications Assistant. We said goodbye to Ms Mahfuza Sreya and Ms Denise Hilker and welcomed back Mrs Shadi Alami from parental leave.

## **ii. CMPT Technical Committees**

CMPT has technical expert committees for each of our main programs: Clinical Bacteriology, Mycology, and Enteric Parasitology programs, and receive valuable guidance from our Water Program chair. Our new committee for Clinical virology formed in September 2022.

CMPT is grateful for all the support we receive from our committee members and committee chairs. Without these expert volunteers, it would be impossible for CMPT to sustain our organism challenge selection process, complete our rigorous evaluation system, maintain the high quality of our critiques, and newsletter. CMPT recognizes the valuable role that our committee members contribute, all is appreciated.

## **b. Operations Update**

### **Space**

CMPT is provided sufficient laboratory space within the Department of Pathology and Laboratory Medicine at the UBC Hospital in the Koerner Pavilion.

In 2022 CMPT acquired one more procedure room as well as 3 new offices for our management staff.

The department also provides valuable resources and personnel to support our finance, human resources, and administrative needs; We appreciate the support we receive from the Department of Pathology and Laboratory Medicine.

### **Safety**

CMPT's level 2 laboratory is regularly assessed by inspectors and maintains a current UBC biosafety certificate of approval to operate. CMPT's organism library is maintained and updated on a daily basis and updates the UBC biosafety certificate quarterly with this information. CMPT meets UBC biosafety and chemical safety requirements and regularly submits to institutional safety audits as well as external audit review as part of maintaining ISO 9001 and ISO 17043 accreditation.

### **Supplies and Materials**

CMPT monitors the costs of supplies and shipping on a rolling basis and also evaluates our program enrollment fees on an annual basis. Costs of consumables has risen sharply on a quarterly basis since 2020 and CMPT needs to closely monitor our costs in order to maintain a balanced ledger. A thorough cost analysis evaluating the actual time and materials costs for each of our programs was completed in December 2022 and informed the result of a cross cutting 7% fee increase for all programs in 2023. CMPT will continue to do this exercise on an annual basis.

## **c. International Collaboration**

CMPT views the national and international landscape of EQA as a valuable opportunity for collaboration for the betterment of healthcare and patient safety. As an organization, CMPT is a member of EQALM and regularly seeks international collaboration opportunities and supports joint publications. CMPT was represented at the EQALM 2022 Symposium in Athens.

As a representative of CMPT, Dr. Perrone promotes CMPT's activities and capabilities throughout her collaborations, publications and speaking engagement. Dr Perrone is a member of the Canadian ISO 15189 mirror committee and maintains many international collaborations. She makes 2-3 international trips per year to foster collaboration and promote the CMPT program.

This program year Dr. Perrone travelled to The Gambia to meet with the Ministry of Health, National Public Health Laboratory and discuss their EQA needs and vision for starting a local microbiology EQA program in Banjul. While in Banjul Lucy also met with the MRC Unit of the London School of Tropical Medicine and Hygiene to discuss their interests in quality assurance scale up in their network of clinical research laboratories. She supported The Gambia's first development of a National Essential Diagnostics List.

CMPT's sister program, the Program Office for Laboratory Quality Management organized the 10<sup>th</sup> Laboratory Quality Conference and CMPT presented data from the COVID-19 EQA program (Restelli et al). Speakers and attendees include 140+ laboratory professional from across Canada and the world.

Dr Perrone will also be attending two conferences this year to present on CMPT's work- the EQALM Symposium in October 2023, where she will be presenting CMPT's clinical bacteriology EQA program data to a largely European audience. She is also presenting at ASLM 2023 in Cape Town, South Africa to a largely African audience. Both will be good opportunities to promote CMPT and its programs.

## **II. FINANCIAL HEALTH**

CMPT relies on the revenues generated through program registration for cost recovery and we successfully balanced our budget against this program year.

Currently CMPT has ~200,000 CAD in financial reserves.

## **III. CMPT's QUALITY MANAGEMENT SYSTEM**

### **a. Assessments**

Over the years, we have found immense value in organizational decision to seek formal recognition by international certification and accreditation bodies. In addition to the recognition by our peers in the international quality assurance community, it has become a principal factor for national and international laboratories seeking providers for external quality services.

Most importantly, CMPT has refined the skills of our staff in the areas of quality management, planning and development of customer services and satisfaction. As the national community of laboratories has consolidated, we have remained financially stable and secure and found the path towards continued innovation and development.

#### **i. Internal Audits**

Internal audits were completed by CMPT staff in February 2022. These audits are done to ensure our compliance with international standards ISO 9001 and ISO 17043.

The internal audits identified some minor issues that required addressing which were successfully completed on time prior to our two external audits in March 2022.

#### **ii. External Assessment and ISO Accreditation**

CMPT's conformance to ISO 9001:2010 was assessed by Intertek in March 2023 and CMPT was successfully recertified. Our Quality System was in compliance with no omissions, errors, or misalignments. This is a huge achievement for the CMPT team who works to maintain our QMS every day of the year.

In March 2023 we were assessed for compliance with the international standard ISO/ IEC 17043:2010 (Conformity assessment - General requirements for proficiency testing) by the American Association for Laboratory Accreditation (A2LA). A2LA cited no major concerns during their audit or report. Minor concerns were noted, but all have subsequently been addressed, and CMPT's accreditation certificate for 2023-2026 was issued.

Our next 17043 audit will be in early 2024 and CMPT will have two new programs to be reviewed (Virology programs and Cannabis microbiology).

#### **iii. Laboratory Safety**

CMPT completes monthly safety audits which are performed and recorded using an on-line survey.

There was also an annual external safety audit performed within our university department. We continue to meet all UBC and national requirements for safety.



#### **iv. OFI Review for 2022-2023**

CMPT continues to operate as a boutique proficiency testing production house, formulating simulated clinical specimens, making each sample by hand. As such, some human error is expected and, at times, unavoidable.

During this 12-month interval, from April 1, 2022 to March 31, 2023, 24 OFIs were recorded, 8 of which were Action Errors (AE). Of the remaining OFIs, 3 were due to operational improvements, and 5 were internal error corrections, 6 were due external error corrections, one was an error correction related to a document and one OFI due to a document replacement/improvement. The total OFIs was down slightly from the previous year (28 OFIs recorded). Three of the OFIs were associated with CMPTs ISO 9001 and ISO 17043 internal and external audit findings. The full list of OFIs is available and maintained at CMPT.

A review of the AE indicated they were mainly the result of human errors from miscommunication or inattention at work. The errors documented included leaking samples, labelling, incorrect or missing samples, which were all responded to and resolved quickly. CMPT has been undergoing considerable changes, including the launching of new programs and new research and development resulting in high workloads, which continues to be an ongoing problem. Additionally, new management responsibilities by senior staff and the training and onboarding of new staff members may have contributed to the errors.

One of the three operational improvements included the CMPT name change from Clinical Microbiology Proficiency Testing to Canadian Microbiology Proficiency Testing program, which better reflects the expansion of programs to include industrial programs, such as the Cannabis Microbiology program. Another operational improvement was to transfer all programs reports to the CMPT member portal, [member.cmpt.ca](http://member.cmpt.ca), which expanded and enhanced the participants experience when accessing information and data entry.

In summary, while CMPT experienced some challenges, with the implementation of some operational adaptation, we were able to adjust with minimum disruption and maintain our competency and quality as a provider of EQA services. CMPT will continue to undergo process improvement initiatives into 2024 (staffing, space, documents and records, communication) to address challenges while maintaining uninterrupted high-quality products and service.

### **b. Review of Quality Indicators**

#### **i. Member Satisfaction Survey**

Customer satisfaction is one of CMPT's quality values and key performance indicators.

Every year, CMPT designs and sends out a survey to evaluate the degree of satisfaction of our customers with our products and services.

In contrast with previous years, we sent a survey that covered major CMPT's aspects and services and applied to all our customers regardless of the programs they participate. CMPT is committed to follow up on the feedback received and monitor its customer satisfaction over time.

In March 2023 a general Customer Satisfaction Survey was sent to approximately 150 labs. We received 31 responses (21% response rate).

## Survey report

### - Communications

97% of the responses indicated they had experienced no problems communicating with CMPT, either by telephone, email, or other notifications.

NO problems	97%
Mostly fine (business as usual) w/some problems	3%

### - EQA samples' transport and receiving

97% of the responses indicated no problems with PT samples shipping transport and receiving

NO problems	97%
Mostly fine (business as usual) w/some problems	3%

### - EQA sample's construction, appearance, functionality

88% of the survey participants considered CMPT's samples relevant and of high quality.

Relevant and of high quality	52%
Relevant and of high quality, mostly fine w/ some problems	6%
Relevant and of high quality; NO quality deterioration over the last year.	30%
Mostly fine w/some problems	4%
NO deterioration in the quality	22%

Most of the issues found were associated with lack of growth of some organisms.

### - CMPT reports, critiques (grading, clarity, fairness)

81% of the responses considered the CMPT reports and critiques consistently excellent.

Consistently excellent	55%
Consistently excellent, w/NO significant loss in the quality	26%
NO significant loss in the quality	13%
Mostly fine but some problems stood out.	6%

### - Value of CMPT's paper and video challenges

50% of the responses considered PC and VC as a valuable or very valuable tool

Indifferent	31%
Not very valuable	7%
Valuable	45%
Very valuable	5%

CMPT introduced the Paper Challenge (PC) and Video Challenge (VC) as PT tools to further evaluate the extra-analytical phase. These challenges are created through a process that involves the selection of a topic, the description of a scenario, the design of possible answers, and the selection of the best response and unacceptable ones.

These challenges are only sent to participants in our Clinical Bacteriology programs and thus, other participants do not receive them. It is important to note though, that extra analytical errors occur in all industries, and in the case of the clinical laboratory, they constitute up to 95% of the total number of errors.

CMPT will continue to work to create relevant challenges that target the extra analytical laboratory phase.

**- How often do you access PD course /critiques?**

Access to critiques or PD course resources varied, however a 35% of respondents indicated they do not access them at all.

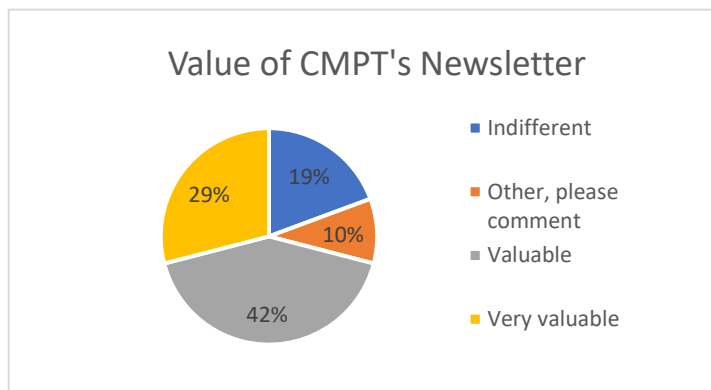
Annually	16%
Monthly	16%
Not at all*	35%
Quarterly	32%

The PD course is geared to Clinical Microbiology participants and thus, we understand that environmental or industry testing laboratories would not find this information or resources relevant. CMPT is committed to provide value to all our customers, irrespective of their testing areas.

In partnership with its sister program, Program Office for Laboratory Quality Management (POLQM), CMPT will work to offer relevant educational resources to Environmental and Industry testing laboratories.

**- CMPT's newsletter**

72% of responses found value in our newsletter, while 30 % were indifferent or were not aware of it.



CMPT's newsletter underwent a major overhaul in Spring and Summer of 2023 with the support of Marketing and Communications assistant Peter Davoust, and is now being sent to subscribers via email as an e-newsletter. We expect this change to increase our readership and bring this valuable resource to our participants and potential customers.

CMPT is also committed to publishing articles and peer reviewed publications.

When asked for general comments, we received 5 positive comments and one complaint.

## - Testimonials

*“Excellent service after our first year. Looking forward to another great year.”*

*“You have a nice program! I prefer it to [another PT provider] in terms of clarity of your reports ... it is on-par with [PT provider].”*

*“CMPT offers high quality, educational material. It has become a driver to implement improvements in the lab. Accessibility to educational materials is excellent.”*

*“I find the critiques very informative, and am really finding the PD course extremely valuable”*

*“You are doing a good service for many across Canada in this changing health care environment.”*

## - Complaints

CMPT takes customers' complaints seriously and we approach each of them as an opportunity for improvement.

One CMPT customer that took the time this year to write their concerns with our services and deserves our attention and response. The participant indicated a lack of clarity of reporting instructions and forms; definition of consensus for a particular program, realistic composition of enteric samples, stability of organisms, and lastly turn around time for the result letters. In response to this complaint CMPT has initiated a series of activities to address these concerns including:

- Revise reporting instructions and reporting forms to increase clarity
- Publish consensus definition and grading guidelines for every CMPT's programs and make them readily available and evident to our participants.
- Continue to work on improving the stability of fastidious organisms as the incorporation of these organisms to PT challenges is important for the testing of the laboratories' competence in isolating them.
- Investigate alternative ways of creating PT reports to decrease turn around time for certain programs. Some programs like Clinical Bacteriology, Parasitology, and Mycology rely on technical committees to evaluate the results, grade, create clinically relevant comments and educational content that is of great value for the laboratory and the laboratory staff. This process takes time and we believe is essential to the quality of our reports. These programs have preliminary results published soon after the survey is due, giving the participants an opportunity to check their results with the expected ones.

Ultimately, CMPT would like to remind participants that while PT reveals weaknesses in the testing process, it also allows laboratories to implement corrective actions that help strengthen their quality system and thus, improve the quality of their results and services.

On balance, we interpreted the survey as strongly positive, but noted that participants in environmental and industry schemes may not be benefiting from all CMPT has to offer right now.

We are committed to provide the same level of value to all our participants and we will be working to achieve this goal in the coming years.

## ii. Fully ungraded samples

We consider fully ungraded challenges a quality indicator as they reflect quality issues in the manufacturing of the sample challenges.

Historically, only the clinical bacteriology challenges were examined for this quality indicator. CMPT has extended the reach of this QI to all of our programs.

### Clinical Microbiology

Program	2022-2023
Clinical Bacteriology	4*
Mycology	0
Parasitology	0
AFB	0
<i>Clostridioides difficile</i>	0
Covid-19	0
Enteric panel	0
Shiga toxin	0

Program	2022-2023
MRSA	0
VRE	0
GBS	0
GAS	0
CRE	0
<i>Trichomonas vaginalis</i>	0
Respiratory virus panel	0

\*Three of these challenges were paper or video challenges; the lack of consensus for these challenges consistently reveals the lack of standardization between laboratories on extra analytical issues. One challenge was ungraded because of lack of consensus on the detection of an enteric pathogen.

### Environmental Microbiology

Program	2022
Drinking Water	0
HPC Water	0

Program	2022
Recreational Water	0
Soil / Sludge	0

### iii. Appeals Resolution

CMPT takes our customer feedback seriously. If any of our participants consider the grading unfair for any given challenge, they have both a right and obligation to appeal their grades. In the program year 2022-23, CMPT had 2 requests for committee appeal for the originally assigned grade.

In one instance, following careful review and further discussion, the committee revised an unacceptable grade to ungraded due the reasonable explanation the participant provided.

The second appeal for this year was regarding the explanation of the reporting cascade of an antibiotic which the committee explained in detail. The committee provided a detail explanation, but the participant's original grade of unacceptable was unchanged.

#### IV. STRATEGIC GOALS AND OBJECTIVES

As part of our Quality Management System, CMPT sets its goals and objectives for the upcoming year, as well as reviews its success with the previous goals. By recording and declaring our goals and objectives, we ensure our commitment to follow-through.

##### i. Goals and Objectives 2022 - 2023

<b>Q22-1</b>	Continue Action Plans associated with the new SWOT analysis	Active
<b>Q22-2</b>	Develop new collaborative activities with International EQA	Active
<b>Q22-3</b>	Focus on Viral and other EQA programs	Active
<b>P221</b>	Maintain and Grow- COVID, virology and other EQA programs	Active
<b>P22-2</b>	Continue to grow opportunities for collaborations especially with BC agencies.	Active
<b>P22-3</b>	Continue with Certification (ISO9001:2015)	Active
<b>P22-4</b>	Continue with Accreditation (ISO IEC17043:2010)	Active
<b>P22-5</b>	Improve internal CMPT processes, including documents and records	Active
<b>P22-6</b>	Support employees of our programs with continuing education opportunities	Active
<b>P22-7</b>	Increase national and international visibility of CMPT programs	Active

## ii. Goals and Objectives 2023 - 2024

<p>1. Nurture existing programs to increase enrollment and revenue</p> <ul style="list-style-type: none"> <li>- CMPT's existing EQA schemes- need stronger promotion with existing and new customers</li> </ul>	Active
<p>2. CMPT- Leverage existing EQA programs to grow into new areas</p> <ul style="list-style-type: none"> <li>- New STI panel (requires Chlamydia samples or culture)</li> <li>- New enteric panel- add enteric viruses Norovirus and Rotavirus, add parasites</li> <li>- Launch new Strep A scheme</li> </ul>	Active
<p>3. Support professional development for staff</p> <ul style="list-style-type: none"> <li>- Promote cross training</li> <li>- Support staff leadership of projects, authorship</li> <li>- Support staff publications and conference attendance</li> </ul>	Active
<p>4. Increase CMPT program visibility by</p> <ul style="list-style-type: none"> <li>- Publications</li> <li>- Conference attendance/presentation</li> <li>- International collaborations</li> <li>- CMPT e-newsletter</li> <li>- Departmental emails, news</li> <li>- LinkedIn social media</li> </ul>	Active
<p>5. CMPT- Improve internal management and technical processes</p> <ul style="list-style-type: none"> <li>- Better monitoring of non-conformities/OFIs</li> <li>- Better monitoring of costs of error (e.g. repeated production, sample reshipments)</li> <li>- Complete space optimization and move</li> <li>- Optimize formulations (e.g. MTB slides- clumping an issue),</li> <li>- Improve sample stability (e.g. water, cannabis samples)</li> </ul>	Active
<p>6. CMPT- Formalize an International EQA training program plan</p> <ul style="list-style-type: none"> <li>- Develop and document CMPT's framework for staff onboarding and training</li> <li>- Develop a plan for what as structures Int EQA training program would look like</li> <li>- Identify possible funding for the IEQATP</li> </ul>	Active

## V. SWOT ANALYSIS FOR CMPT (2020 – 2025)


<p><b>Strengths</b></p>	<p>Strong Support within the Department of Pathology and Laboratory Medicine UBC            Strong, Effective, Capable, Professional Staff            Strong support by customers as seen by satisfaction surveys and Composite Satisfaction Score            Strong commitment to Innovation, Education, Quality Assessment, Continual Improvement.            Strong network of collaboration partners            Certification (ISO 9001:2015) and Accreditation (ISO IEC 17043:2010)            Strong technical capacity, microorganism library 400 pure cultures. This could support PT for other public health and safety related testing labs such as food and agriculture, cosmetics, cannabis, etc.</p>
<p><b>Weaknesses</b></p>	<p>Tendency to allow team to become overworked, increasing the opportunities for error            Insufficient engagement and collaborations with other programs within the department and UBC. Insufficient engagement with laboratory medicine residents and with BMLSc            Strong on practical R&amp;D but not taking advantage of platform for academic research            Funding is based on provision of service and requires regular renewals. If a client decides that they either cannot or choose to not renew a contract, then CMPT could have financial difficulties.</p>
<p><b>Opportunities</b></p>	<p>Expanding network of EQA collaboration partners            Expansion into other laboratory testing arenas (Food, Virology, and others)            New opportunities with new CMPT leadership by 2022            Link CMPT into opportunities for Capstone projects.            Continue to seek EQA programs wanting EQA Training</p>
<p><b>Threats</b></p>	<p>Senior staff are nearing retirement and there is a need for succession planning to prevent loss of institutional knowledge.            Consistent threat of continued clinical laboratory mergers and reduced customer base.</p>

With change comes excitement mixed with dash of stress and anxiety.

My goal is to guide CMPT through these changes and grow the organization in ways that build operational resilience, values and respects our people’s intelligence, creativity and their personal lives, and continues to innovate to meet the needs of testing labs for better patient care and public health.

The peer-directed, collaborative operating principles which guide CMPT will continue to be the bedrock on which we will grow and I think the future looks bright for CMPT.

With deepest gratitude to the CMPT staff, volunteers, partners and collaborators,



Lucy A Perrone, MSPH, PhD  
 Chair, CMPT  
 September, 2023



#### IV. COMMITTEE MEMBERS 2022-2023

Committee members volunteer their time and are essential for selecting challenges, assessing results, and producing the critiques. The efforts contributed by each committee member are critical to the function of CMPT and are very much appreciated.

##### **Medical Advisor**

Daniel G. Holmes, MD, FRCPC ..... St. Paul's Hospital, Vancouver, BC

##### **Water Microbiology Program**

Chris Enick, BSc .....Element, Surrey, BC

##### **Mycology Program**

Tanis Dingle PhD FCCM,D(ABMM) .....Provincial Laboratory for Public Health, Calgary, AB

Brad Jansen BSc, MLT.....Provincial Laboratory for Public Health, Edmonton, AB

Robert Rennie, PhD FCCM, D(ABMM) .....University of Alberta Hospital, Edmonton, AB

Romina Reyes, MD FRCPC .....LifeLabs, Burnaby, BC

##### **Enteric Parasitology Program**

Catherine Hogan MDCM .....BCCDC, Vancouver, BC

Romina Reyes, MD FRCPC .....LifeLabs, Surrey, BC

Pauline Tomlin, ART, BSc. MPH..... Provincial Laboratory for Public Health, Edmonton, AB

##### **Clinical Bacteriology Program**

Ghada Al-Rawahi, MD FRCPC D(ABMM) BC Children's and Women's Hospital, Vancouver, BC

Wilson Chan, MD FRCPC D(ABMM).....DynaLIFE Medical Laboratories, Calgary, AB

David J. M. Haldane, MD FRCPC ..... Queen Elizabeth II Health Sciences Centre, Halifax, NS

Katrina Hurley, MLT..... Battlefords Union Hospital, North Battleford, SK

James A. Karlowsky, PhD D(ABMM)..... St. Boniface General Hospital, Winnipeg, MB

Ninad Mehta, Ph.D.,D(ABMM), FCCM.....Royal University Hospital, SK

Doris Poole, MLT, BSc.....Queen Elizabeth Hospital, Charlottetown, PEI

Robert Rennie, PhD FCCM, D(ABMM) .....University of Alberta Hospital, Edmonton, AB

Sandy Saragoca TM, MLT.....St. Mary's Hospital, Montreal, QC

Denise Sitter, ART .....Cadham Provincial Laboratory, Winnipeg, MB

Janet Reid, BMLSc, ART .....Horizon Health Network, NB

##### **Virology Program**

Mathew Diggle PhD, MSc, DLSH&TM FRCPath (UK)..... APL/ProvLab, Edmonton, AB

David Goldfarb MD FRCPC.....PHSA, BC Children's & Women's Hospital, Vancouver, BC

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## V. EQA PROGRAMS RESULTS FOR 2022-23

The changing landscape of medical laboratories in terms of size, number, and activity has stimulated us to seek opportunities in EQA innovation, to which we have responded with increased variety of samples and programs. We continue to extend research and development for new assays with the view to improve products and extend the variety of clinically relevant challenges in addition to our current programs.

CMPT also has a PT program for water testing laboratories which provides samples for about 50 laboratories across Canada. Samples are provided for laboratories that work with Membrane Filtration, Presence-Absence, Enzyme Substrate, and Most Probable Water methods. We also provide samples for another Canadian PT program focused on water testing laboratories.

A summary of our programs for 2022-2023 is detailed below.



### Interpreting the histograms

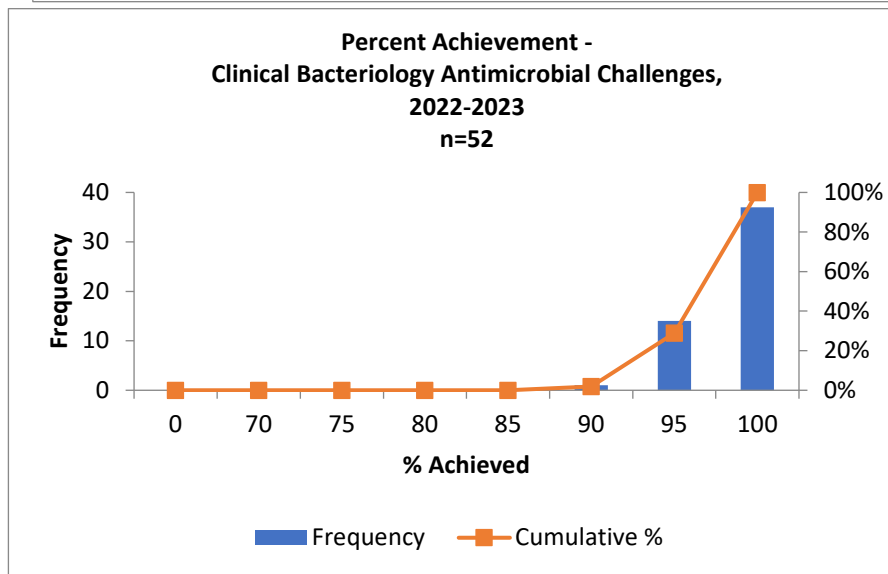
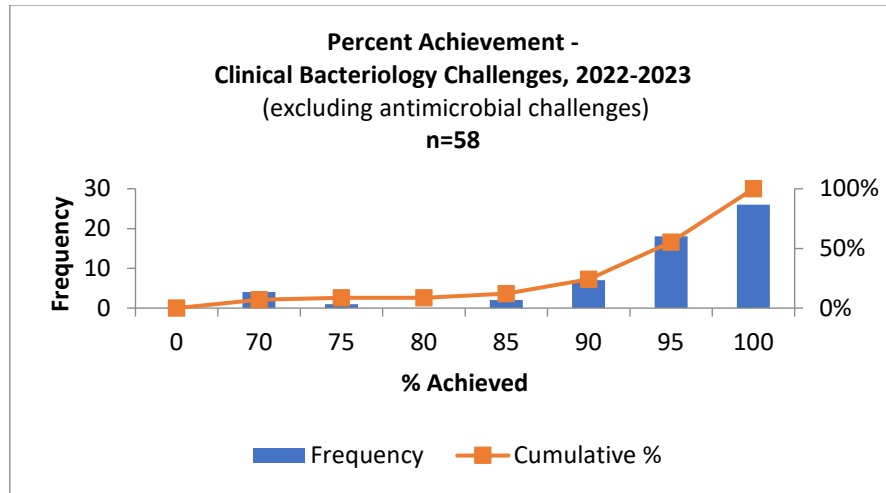
All histograms portray the total percent achievable score. For each laboratory, the sum of all challenges performed and graded was calculated, either as a total for all challenges, or within a specific category, such as “bacterial identification”. The total achievable score, which is the score the laboratory *would have obtained* if they received a grade of 4/4 for each graded challenge was calculated. Challenges that are ungraded get excluded from the analysis. For this program year, there were no ungraded challenges. The percent achievable score gets calculated as:  $(\text{total achieved score} / \text{total achievable score}) \times 100$ .

The number of laboratories achieving a specific grade is indicated by the height of the columns over the Percent Achievable Score, and is read on the LEFT side scale of the chart.

The Cumulative Scoring is indicated by the connected box-line that starts low on the left and rises to the right, and is read on the Right-side scale of the chart. The cumulative column indicates the percentage of laboratories that received an acceptable grade on the challenge.

### A. CLINICAL BACTERIOLOGY PROGRAM

Clinical bacteriology surveys are shipped 4 times per year. Each survey can consist in up to seven different types of samples depending on the category of the laboratory and the challenges to which they are subscribed. This includes paper and video challenges, blood cultures, Gram staining and bacterial identification. The following graphs show the relative success of the participants' performance this program year. An additional histogram is included for susceptibility testing performance.



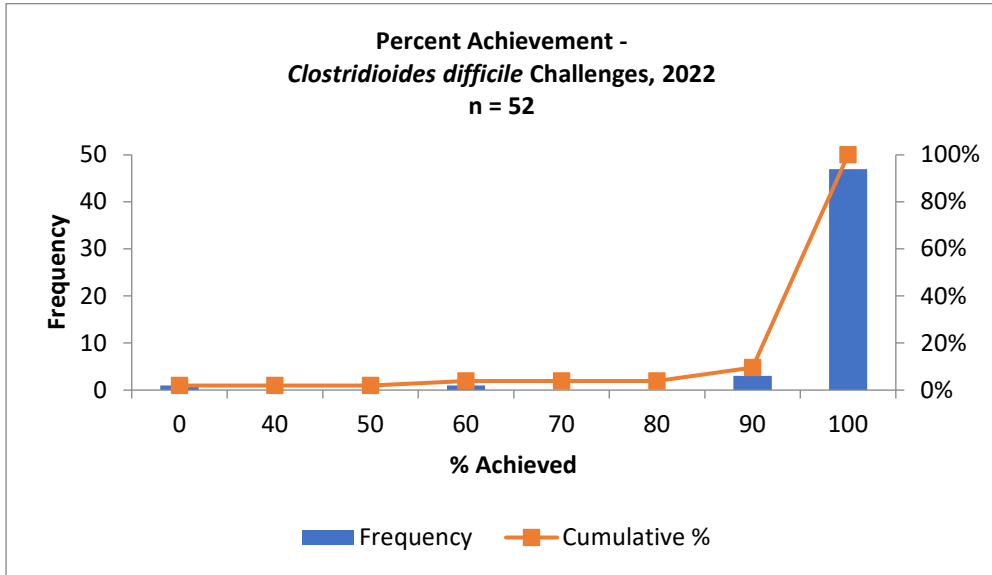
**Summary of results:** A total of 58 labs participated in this program this year with 44/58 labs performing at >95%. Seven laboratories achieved an overall percent achievement score of 90%, two labs achieved 85%, two labs achieved 75% and 4 labs achieved 70%. Fifty-two labs performed and reported antibiotic susceptibility testing with 52/52 achieving >90% and 71% of the labs achieving 100%.

**Fully ungraded challenges: 4\***

\*Three of these ungraded challenges were paper or video challenges; and so the lack of consensus for these challenges consistently reveals the lack of standardization between laboratories on extra analytical issues. One challenge was ungraded because of lack of consensus on the detection of an enteric pathogen.

## B. CLOSTRIDIoidES DIFFICILE PROGRAM

*Clostridioides difficile* samples were added to the Clinical Bacteriology program in 2006 to address infection control concerns in facilities. The program consisted of 2 samples, shipped twice a year. Program participants report the presence or absence of a toxin gene and/or toxin antigen. Notification to the infection control department was also considered for grading, where applicable. In May 2016, the *Clostridioides difficile* program was reorganized as a standalone program and graded separately from the Clinical Bacteriology program. The histogram illustrates the participants' performance in 2022.



**Summary of results:** A total of 52 labs participated in this program this year with 50/52 achieving 100% and one lab each achieving 60% and 0%.

**Fully ungraded challenges:** 0

### C. WATER MICROBIOLOGY PROGRAM

Drinking Water challenge surveys are shipped to laboratories three times per year. Each survey consists of sets of 4 drinking water samples. Starting in 2015, the Heterotrophic Plate Count program was offered to laboratories that tested drinking water samples with this method. Recreational Water challenge surveys are shipped two times per year. Each survey consists of one set of recreational water samples (spa water, freshwater beach or marine water). Participants participate in one, two or all the recreational challenge samples.

Not all laboratories perform all challenges and not all laboratories use the same methods when testing water samples. Laboratories perform testing use one to four methods depending on the laboratory's accreditation criteria. Laboratories also perform the Presence/Absence method, as their primary method or in addition to other methods. The drinking water bacteriology (membrane filtration, Enzyme Substrate, MPN and Presence/Absence methods) challenge records for 2022 are shown in Table 1, Heterotrophic Plate Count program records are shown in Table 2, and the recreational water challenge records are shown in Table 3.

**Table 1: 2022 Drinking Water Bacteriology challenge record**

Date	Sample No.	Organism	Membrane Filtration mean/median/MU% cfu/100 ml		Enzyme Substrate mean/median MPN/100 ml		MPN mean/median MPN/100 ml		Presence/ Absence (P/A)
			Total Coliforms	<i>E.coli</i>	Total Coliforms	<i>E.coli</i>	Total Coliforms	<i>E.coli</i>	Total Coliforms/ <i>E.coli</i>
<b>W221 April 4, 2022</b>	1	<i>Enterobacter</i> species	60/60/12.8	0/0/0	59.2/59.4	0/0	≥23/≥23	0/0	P/A
	2	<i>Escherichia</i> <i>coli</i>	15/15/28.2	15/16/27.2	14.7/15.0	13.0/11.6	13.4/12.0	14.1/14.0	P/P
	3	<i>Enterobacter</i> species	60/60/15.7	0/0/0	59.4/63.8	0/0	≥23/≥23	0/0	P/A
	4	<i>Enterobacter</i> species	50/50/13.4	0/0/0	48.6/48.7	0/0	≥23/≥23	0/0	P/A
<b>W222 July 11, 2022</b>	1	no organisms present	0/0/0	0/0/0	0/0/0	0/0	0/0	0/0	A/A
	2	<i>Enterobacter</i> species	36/36/11.0	0/0/0	38.0/38.0	0/0	≥23/≥23	0/0	P/A
	3	<i>Enterobacter</i> species	41/39/18.3	0/0/0	44.8/45.5	0/0	≥23/≥23	0/0	P/A
	4	<i>Escherichia</i> <i>coli</i>	49/50/15.8	49/50/15.9	51.6/52.6	51.1/50.4	≥23/≥23	≥23/≥23	P/P
<b>W223 October 24, 2022</b>	1	<i>Enterobacter</i> species	26/26/20.4	0/0/0	28.2/28.0	0/0	≥23/≥23	0/0	P/A
	2	<i>Escherichia</i> <i>coli</i>	65/65/24.7	64/64/23.6	68.4/65.6	64.0/62.6	≥23/≥23	≥23/≥23	P/P
	3	<i>Escherichia</i> <i>coli</i>	43/45/17.0	43/44/17.3	45.5/45.3	43.6/45.3	≥23/≥23	≥23/≥23	P/P
	4	<i>Escherichia</i> <i>coli</i>	16/17/24.6	15/16/25.9	17.7/18.0	17.3/18.0	≥23/≥23	≥23/≥23	P/P

Table 2: 2022 Drinking Water Bacteriology for Heterotrophic Plate Count			
Date	Sample No.	Organism	mean/median (cfu/ml)/MU%
H221 April 4, 2022	1	<i>Enterobacter</i> species	55/58/15.8
	2	<i>Escherichia coli</i>	293/285/21.5
	3	<i>Escherichia coli</i>	62/58/19.3
	4	<i>Enterobacter</i> species	59/59/7.9
H222 July 11, 2022	1	no organisms present	0/0/0
	2	<i>Escherichia coli</i>	291/274/27.0
	3	<i>Escherichia coli</i>	96/94/11.5
	4	<i>Escherichia coli</i>	92/89/10.1
H223 October 24, 2022	1	<i>Escherichia coli</i>	123/119/14.1
	2	<i>Enterobacter</i> species	51/51/18.0
	3	<i>Escherichia coli</i>	200/200/11.8
	4	no organisms present	0/0/0.0

Table 3: 2022 Recreational Water Bacteriology challenge record				
Date	Source	Challenge	mean/median/MU%	
			Membrane Filtration cfu/100mL	Enzyme Substrate MPN/100 ml
R221 April 4, 2022	Spa Water	<i>Pseudomonas aeruginosa</i>	180/174/25.5	142.9/142.5
	Freshwater Beach	<i>Escherichia coli</i>	86/87/21.4	103.3/111.2
	Marine Water	<i>Enterococcus</i> species	267/255/17.7	100.3/93.3
R212 August 23, 2021	Spa Water	<i>Pseudomonas aeruginosa</i>	77/79/25.7	95.0/93.0
	Freshwater Beach	<i>Escherichia coli</i>	265/253/16.6	265.0/261.3
	Marine Water	<i>Enterococcus</i> species	158/154/13.4	55.0/55.0

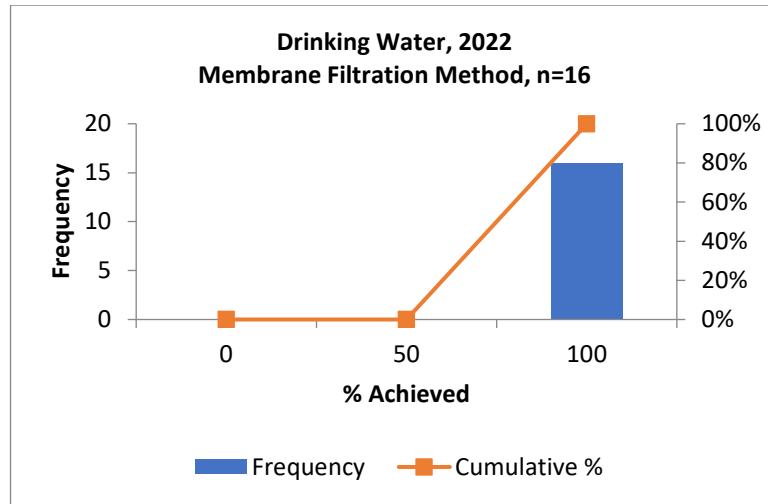
MU% - not applicable for EST, MPN or PA methods

### Water Bacteriology (Drinking and Environmental Water Sample) Score

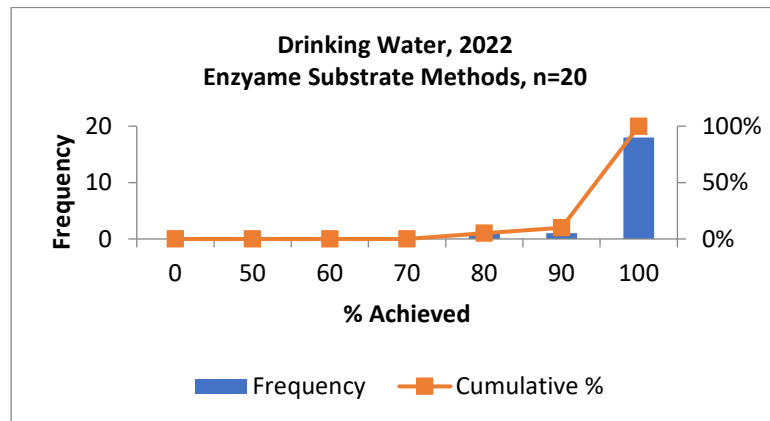
Laboratory testing results are graded based on the Membrane Filtration, Enzyme Substrate, MPN, Heterotrophic Plate Count (HPC) and/or Presence/Absence methods. All methods are graded on a point scale for assessment of water samples with the exception of the Presence/Absence method, a qualitative method and are, therefore, graded qualitatively. With 12 drinking water samples tested for the program year, the maximum score is 36. With 12 drinking water samples tested, using the HPC method, the maximum score is 36 for the program year. With 3 environmental water samples, laboratories can receive up to a maximum score of 9.

The following Score Tables illustrate the % Achievable scores for methods used for Drinking Water samples during 2022.

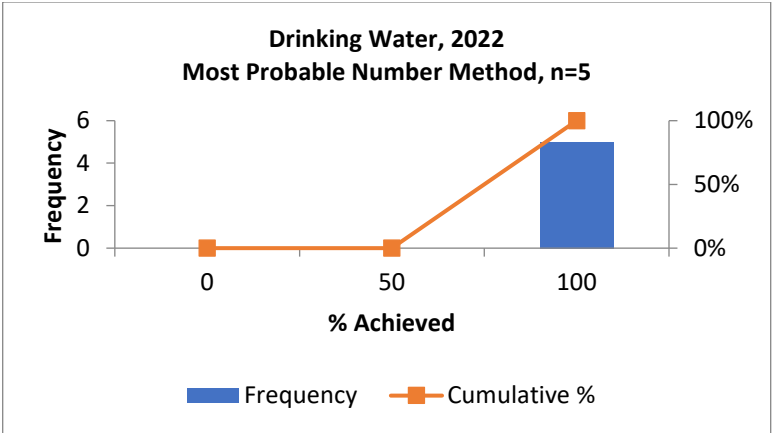
Drinking Water Performance Table for the Membrane Filtration method, 2022		
Achievable	Labs (n=16)	Cumulative %
100	16	100



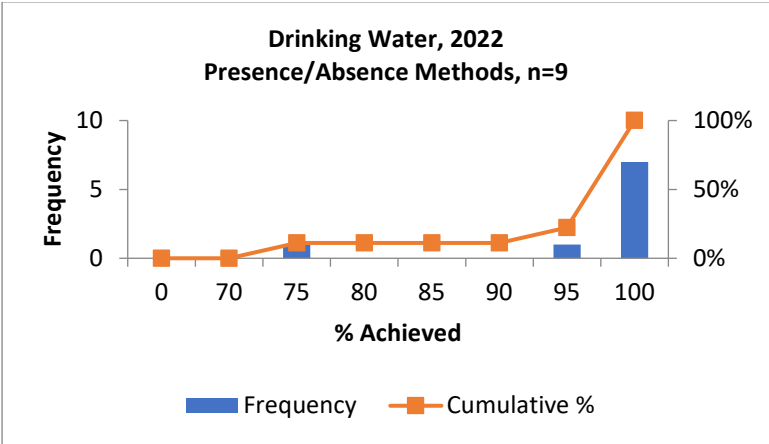
Drinking Water Performance Table for Enzyme Substrate methods, 2022		
Achievable	Labs (n=20)	Cumulative %
80	1	5
90	1	10
100	18	100



Drinking Water Performance Table for Most Probable Number (MPN) method, 2022		
Achievable	Labs (n=5)	Cumulative %
100	5	100



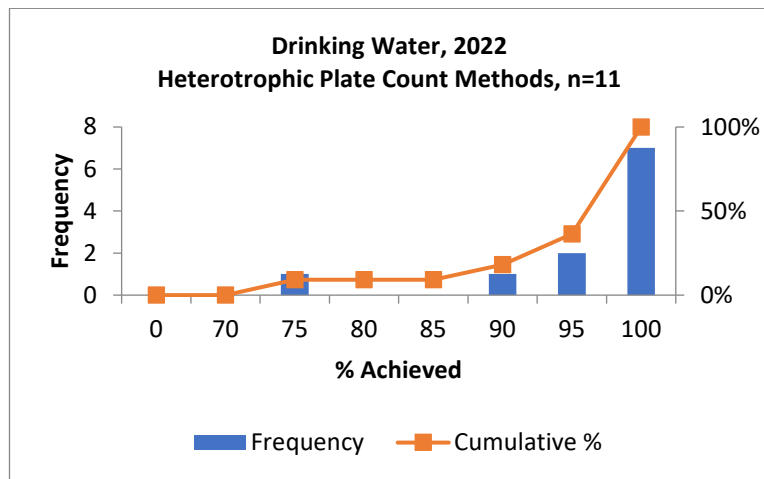
Drinking Water Performance Table for Presence/Absence methods, 2022		
Achievable	Labs (n=9)	Cumulative %
75	1	11.11
95	1	22.22
100	7	100





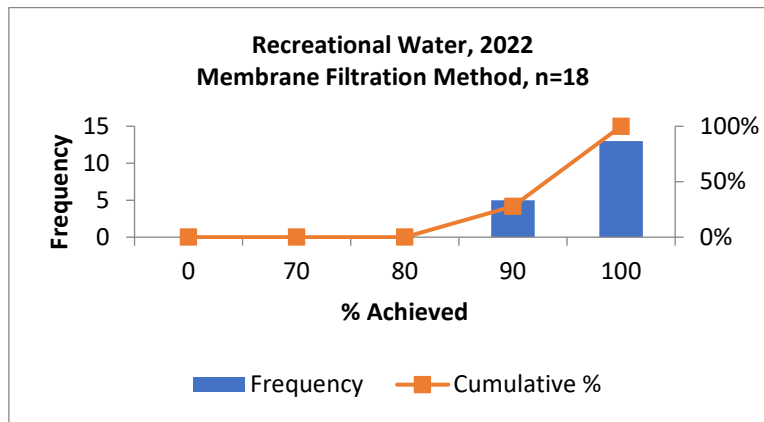
The following Table illustrates the % Achievable scores for the Heterotrophic Plate Count method used for Drinking Water samples during 2022.

Drinking Water Performance Table for Heterotrophic Plate Count method Table, 2022		
Achievable	Labs (n=11)	Cumulative %
75	1	9.09
90	1	18.18
95	2	36.36
100	7	100

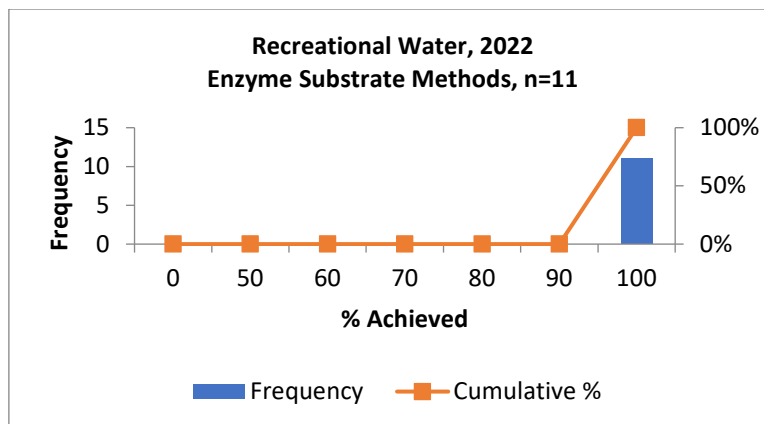


The following Score Tables illustrate the Achievable scores for Membrane Filtration and Enzyme Substrate methods used for Recreational Water samples during 2022.

Recreational Water Performance Table for the Membrane Filtration method, 2022		
Achievable	Labs (n=18)	Cumulative %
90	5	27.78
100	13	100



Recreational Water Performance Table for the Enzyme Substrate method, 2022		
Achievable	Labs (n=11)	Cumulative %
100	11	100



## D. MYCOLOGY PROGRAM

The Mycology Plus Program was introduced in June 2001.

Participants receive 3 shipments per year, each including 3 fungal smear slides for direct examination and 3 proficiency challenges for the identification of dermatophytes, molds, common laboratory contaminants, and yeasts. In 2016-2017, the expert committee decided to start grading mycology challenges. Grading is on a two-point scale, acceptable or unacceptable. Susceptibility challenges for yeasts were introduced in 2008 and laboratories performing anti-fungal testing were encouraged to report their results.

Table 1: 2022 challenge results						
Survey	Samples			Grades		
				A	U	UG
MY2204 April 2022	Fungal Smear (hyphae)	A	Positive	11	1	1
		B	Negative	12		1
		C	Negative	11	1	1
	Yeast	1	<i>Candida krusei</i>	11		
	Dermatophyte	2	<i>Trichophyton rubrum</i>	10		1
	Mold	3	<i>Exophiala dermatitidis</i>	11		
MY2208 August 2022	Fungal Smear (hyphae)	A	Positive	13		1
		B	Positive	13		1
		C	Negative	13		1
	Yeast**	1	<i>Cryptococcus neoformans</i>	10		1
	Dermatophyte	2	<i>Epidermophyton floccosum</i>	11		
	Mold	3	<i>Aspergillus terreus</i>	10		1
MY2211 November 2022	Fungal Smear (hyphae)	A	Negative	13		1
		B	Negative	13		1
		C	Positive	13		1
	Yeast	1	<i>Candida dubliniensis</i>	11		
	Dermatophyte	2	<i>Trichophyton tonsurans</i>	7	3	1
	Mold	3	<i>Lomentospora prolificans</i>	9	1	1
<b>Totals</b>				<b>202</b>	<b>6</b>	<b>14</b>

**A – Acceptable U – Unacceptable UG - ungraded**

**Summary of results:** Overall, labs participating in the water microbiology program performed very well this year with an acceptable rate of 91%; there was a 6% of ungraded responses and 3% of incorrect results.

**Fully ungraded challenges: 0**

## E. ENTERIC PARASITOLOGY PROGRAM

Enteric parasitology samples are actual clinical samples fixed in formalin solution. Participants receive 3 surveys per year. Each survey consists of 3 SAF preserved samples that are suitable for concentration techniques and smear preparation; Grading is assessed on the combined results of the stained smear and the concentrate and is based on a 2 point scale (acceptable or unacceptable). Table 1 lists the samples and grades received for the 2022 challenges.

Table 1. Enteric Parasitology Challenges 2022					
Date	Sample	Parasite(s)	A*	U*	UG*
April 2022	PA2204-1	<b><i>Cryptosporidium species</i></b> , <i>Entamoeba coli</i>	12	2	
	PA2204-2	No ova or parasites	14		
	PA2204-3	<b><i>Dientamoeba fragilis</i></b>	14		
July 2022	PA2207-1	No ova or parasites, neutrophils, red blood cells	14		
	PA2207-2	<b><i>Diphyllobothrium species</i></b>	14		
	PA2207-3	<b><i>Giardia lamblia</i></b> , <b><i>Entamoeba histolytica/dispar</i></b> , <b><i>Blastocystis species</i></b> , <i>Endolimax nana</i> , <i>Entamoeba hartmanni</i>	13	1	
September 2022	PA2210-1	No ova or parasites	14		
	PA2210-2	<b><i>Taenia species</i></b> , <b><i>Blastocystis species</i></b> , <i>Endolimax nana</i> , <i>Entamoeba coli</i>	14		
	PA2210-3	<b><i>Blastocystis species</i></b>	13	1	
<b>Total</b>			<b>122</b>	<b>4</b>	

**BOLD – pathogen**      **Blue – potential pathogen**

\*Grades: A: acceptable; U: unacceptable; UG: ungraded

**Summary of results:** Overall, labs participating in this program performed very well this year with a 97% of acceptable results. As with all our programs, laboratories that did not perform well were consulted about their results.

**Fully ungraded challenges:** 0

## F. TRICHOMONAS VAGINALIS PROGRAM

CMPT launched the *Trichomonas vaginalis* program with the first shipment on August 8, 2011.

The program consisted of 2 surveys in 2011. Since 2012, the number of surveys was increased to 3. Each survey consists of 4 samples which are suitable for antigen or DNA testing. Grading is based on a 2 point scale (acceptable or unacceptable). Table 1 lists the samples and grades received for the 2022 challenges.

<b>Table 1. <i>Trichomonas vaginalis</i> Challenges 2022</b>					
<b>Date</b>	<b>Sample</b>	<b>Results</b>	<b>Acceptable</b>	<b>Unacceptable</b>	<b>Ungraded</b>
<b>April 4, 2022</b>	TR2204-1	Negative	21		
	TR2204-2	Positive	21		
	TR2204-3	Negative	21		
	TR2204-4	Positive	21		
<b>July 4, 2022</b>	TR2207-1	Positive	21		
	TR2207-2	Positive	21		
	TR2207-3	Negative	21		
	TR2207-4	Negative	21		
<b>September 26, 2022</b>	TR2210-1	Negative	21		
	TR2210-2	Negative	21		
	TR2210-3	Positive	21		
	TR2210-4	Positive	21		
<b>Total</b>			<b>260</b>	<b>0</b>	<b>0</b>

**Summary of results:** Overall, labs participating in this program performed excellently this year with all labs receiving acceptable scores. No labs had unacceptable results.

**Fully ungraded challenges:** 0

## G. SHIGA TOXIN PROGRAM

CMPT launched the Shiga Toxin Program with the first shipment on May 7, 2012. Participants receive 2 surveys a year with each survey consisting of 3 simulated stool samples. Grading is based on a 2-point scale (acceptable or unacceptable). Table 1 lists the samples and grades received for the 2022 challenges.

<b>Table 1. Shiga Toxin Challenges 2022</b>				
<b>Date</b>	<b>Sample</b>	<b>Results</b>	<b>Acceptable</b>	<b>Unacceptable</b>
<b>May 9, 2022</b>	ST2205-1	gene and toxin positive	13	1
	ST2205-2	gene and toxin negative	13	1
	ST2205-3	gene and toxin negative	13	1
<b>November 7, 2022</b>	ST2211-1	gene and toxin negative	13	2
	ST2211-2	gene and toxin positive	13	2
	ST2211-3	gene and toxin negative	13	2
<b>Total</b>			<b>81</b>	<b>9</b>

**Summary of results:** Overall, labs participating in this program performed well this year. The number of unacceptable results this year was more than the previous year; up from 3 in 2021 to 9 in 2022, which required further evaluation and internal discussion.

**Fully ungraded challenges:** 0

## H. SCREENING AND MOLECULAR TESTING PROGRAM

CMPT launched the Molecular PT Program with the first shipment on March 23, 2009. The program consists of 2 surveys. With each survey participants receive 4 samples for methicillin-resistant *Staphylococcus aureus* (MRSA), vancomycin-resistant *Enterococcus* species (VRE) and group B *Streptococcus* (GBS) each. In 2019, CMPT expanded the Molecular PT Program to include carbapenem-resistant Enterobacterales (CRE). Because all of the samples can also be tested using screening methods, such as chromogenic media, the program was renamed as the “Screening and Molecular” Program. Laboratories can participate in one, some or all of the 4 sample types.

Grading is based on a 2 point scale (acceptable or unacceptable). Table 1 lists the samples and grades received for the 2022 challenges.

Table 1. Screening and Molecular Challenges 2022						
Date	Sample	Results	Acceptable	Unacceptable	Ungraded	
April 25, 2022	MRSA	MR 2204-1	negative	34		
		MR 2204-2	negative	33	1	
		MR 2204-3	positive	34		
		MR 2204-4	negative	34		
	VRE	VR 2204-1	negative	32		
		VR 2204-2	negative	32		
		VR 2204-3	negative	30	2	
		VR 2204-4	positive (van A)	28	1	3
	GBS	GB 2204-1	positive	34		
		GB 2204-2	negative	34		
		GB 2204-3	negative	34		
		GB 2204-4	positive	34		
	CRE	CRE 2204-1	negative	24	1	
		CRE 2204-2	positive	25		
		CRE 2204-3	positive	25		
		CRE 2204-4	positive	24	1	
<b>Total</b>			<b>491</b>	<b>6</b>	<b>3</b>	

Table 1. Screening and Molecular Challenges 2022 cont.						
Date	Sample	Results	Acceptable	Unacceptable	Ungraded	
August 15, 2022	MRSA	MR 2208-1	positive	33		1
		MR 2208-2	negative	33		1
		MR 2208-3	positive	33		1
		MR 2208-4	negative	33		1
	VRE	VR 2208-1	positive	26	2	4
		VR 2208-2	positive	26	2	4
		VR 2208-3	positive	25	3	4
		VR 2208-4	negative	31		1
	GBS	GB 2208-1	negative	32	1	1
		GB 2208-2	positive	32	1	1
		GB 2208-3	negative	32	1	1
		GB 2208-4	positive	32	1	1
	CRE	CRE 2208-1	positive	24		1
		CRE 2208-2	negative	25		
		CRE 2208-3	negative	25		
		CRE 2208-4	positive	24		1
<b>Total</b>			<b>466</b>	<b>11</b>	<b>23</b>	
<b>Year Total</b>			<b>957</b>	<b>17</b>	<b>26</b>	

**Summary of results:** Overall, labs participating in the molecular and screening program performed well this year with a total of 957 test events completed. The number of unacceptable results this year was more than in 2021-22 (up from 4), which required further evaluation and internal discussion. The number of ungraded challenges increased to 1 from previous year. As with all our programs, laboratories that did not perform well or had questions were consulted about their results.

**Fully ungraded challenges: 0**



## I. ACID FAST BACILLI PROGRAM

CMPT launched the Acid-Fast Bacilli Program on April 10, 2017. Participants receive 3 surveys a year, each survey consisting of 3 simulated smears for acid fast staining and interpretation. Grading is based on a 2-point scale (acceptable or unacceptable). Table 1 lists the samples and grades received for the 2022 challenges.

<b>Table 1. Acid Fast Bacilli Challenges 2022</b>					
<b>Date</b>	<b>Sample</b>	<b>Results</b>	<b>Acceptable</b>	<b>Unacceptable</b>	<b>Ungraded</b>
<b>April 11, 2022</b>	AFB2204-1	positive	7		
	AFB2204-2	positive	7		
	AFB2204-3	negative	7		
<b>July 4, 2022</b>	AFB2207-1	negative	7		
	AFB2207-2	negative	7		
	AFB2207-3	positive	7		
<b>September 26, 2022</b>	AFB2210-1	negative	7		
	AFB2210-2	positive	7		
	AFB2210-3	negative	7		
<b>Total</b>			<b>63</b>	<b>0</b>	<b>0</b>

**Summary of results:** Overall, the number of labs participating in this program performed very well this year with no unacceptable grades.

**Fully ungraded challenges:** 0

## J. ENTERIC PANEL PROGRAM

CMPT launched the Enteric Panel Program with the first shipment on April 23, 2018. Participants receive 2 surveys per year; each survey consisting of 4 simulated stool samples for the detection of enteric pathogens by molecular methods. Grading is based on a 2-point scale (acceptable or unacceptable). Table 1 lists the samples and grades received for the 2022 challenges. The number of subscribers to this program increased this year (up from 58).

Table 1. Enteric Panel Challenges 2022					
Date	Sample	Results	Acceptable	Unacceptable	Ungraded
April 25, 2022	EP2204-1	<i>Aeromonas</i> species	9		4
	EP2204-2	<i>Salmonella</i> species	12		1
	EP2204-3	no pathogens	11	1	1
	EP2204-4	<i>Campylobacter</i> species	11	1	1
August 15, 2022	EP2208-1	<i>Vibrio</i> species	8	2	3
	EP2208-2	<i>Yersinia</i> species	10		3
	EP2208-3	<i>Shigella</i> species	12		1
	EP2208-4	no pathogens	12		1
<b>Total</b>			<b>85</b>	<b>4</b>	<b>15</b>

**Summary of results:** Overall the labs participating in this program performed well this year. The number of unacceptable results increased 1 from the previous year and also there was an increase (up from 9) in the number of ungraded challenges.

**Fully ungraded challenges:** 0

## K. CLINICAL VIROLOGY

### COVID-19 EQA PROGRAM

CMPT launched the SARS CoV-2 (Covid-19) Program with the first shipment on March 2022. This program was performed in collaboration with BC CDC who produced the source raw material used in the challenges- BPL inactivated SARS-CoV-2 virus.

Participants received 6 surveys this program year; each survey consisting of 4 simulated nasopharyngeal samples for the detection of SARS CoV-2 virus by rapid antigen and molecular methods.

Grading is based on a 2-point binary scale (acceptable or unacceptable).

Challenges unreturned are not graded and therefore excluded from the data set. Data below reflect only those challenge which were graded. Ungraded marks indicate that a participant did not submit results.

Sites which did not detect a positive RNAase P housekeeping gene (internal control for the assay) were not graded/ungraded and that data is reflected below.

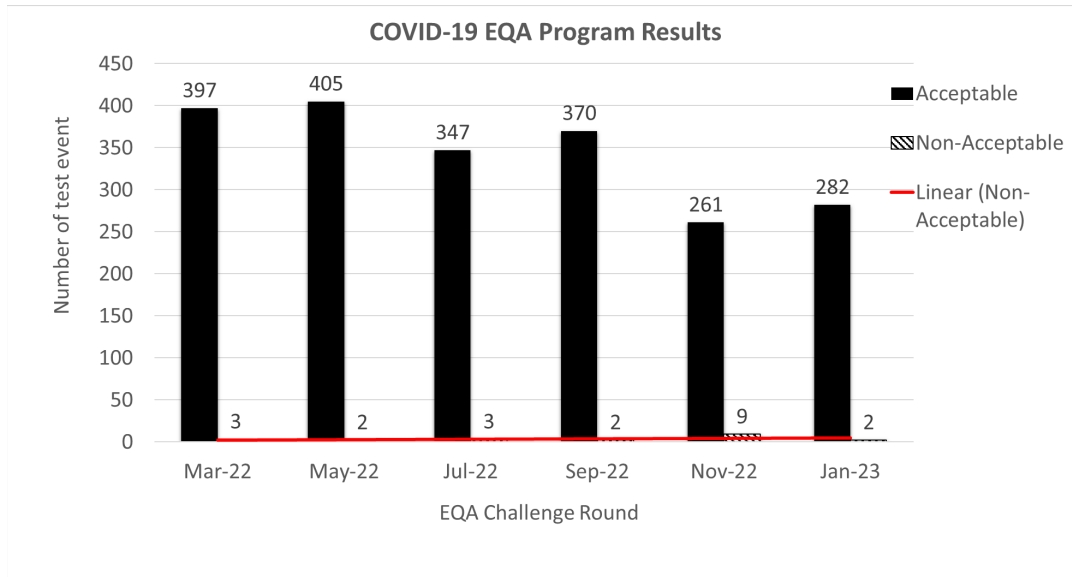
Table 1 below lists the samples and grades received for the 2022-2023 challenges.

Table 1. Covid-19 EQA Program Results for program year 2022-2023								
Challenge Round	Sample ID	Expected Test Result	No. of acceptable results	No. of unacceptable results	No. of No reports	No. of Ungraded	% Acceptable	% Unacceptable
March 2022	COV2203-1	Positive	99	1	0		99.0	1.0
	COV2203-2	Negative	100	0	0		100.0	0.0
	COV2203-3	Positive	98	2	0		98.0	2.0
	COV2203-4	Positive	100	0	0		100.0	0.0
May 2022	COV2205-1	Negative	101	0	3	1	100.0	0.0
	COV2205-2	Positive	101	1	3		99.0	1.0
	COV2205-3	Negative	101	1	3		99.0	1.0
	COV2205-4	Negative	102	0	3		100.0	0.0
July 2022	COV2207-1	Positive	87	1	22		98.9	1.1
	COV2207-2	Negative	87	0	22	1	100.0	0.0
	COV2207-3	Negative	87	0	22	1	100.0	0.0
	COV2207-4	positive	86	2	22	0	97.7	2.3
September 2022	COV2209-1	Negative	93	0	4		100.0	0.0
	COV2209-2	Negative	93	0	4		100.0	0.0
	COV2209-3	Positive	91	2	4		97.8	2.0
	COV2209-4	Positive	93	0	4		100.0	0.0
November 2022	COV2211-1	Negative	66	1	8	1	98.5	1.5
	COV2211-2	Positive	60	8	8		88.2	11.8
	COV2211-3	Positive	68	0	8		100.0	0.0
	COV2211-4	Negative	67	0	8	1	100.0	0.0
January 2023	COV2301-1	Positive	71	0	7		100.0	0.0
	COV2301-2	Positive	70	1	7		98.6	1.4
	COV2301-3	positive	71	0	7		100.0	0.0
	COV2301-4	Negative	70	1	7		98.6	1.4
<b>Total</b>			<b>2062</b>	<b>21</b>	<b>176</b>		<b>98.9</b>	<b>1.1</b>

**Summary of results:**

Overall, the majority of testing sites participating in this program performed very well with only 1.1 % unacceptable results and with 98.9 % acceptable results.

the November 2022 survey documented the greater number of erroneous results for the entire program year with 13.1% sites with unacceptable results for that test event.



\*The trend line (red line) indicated above trends of unacceptable results over time.

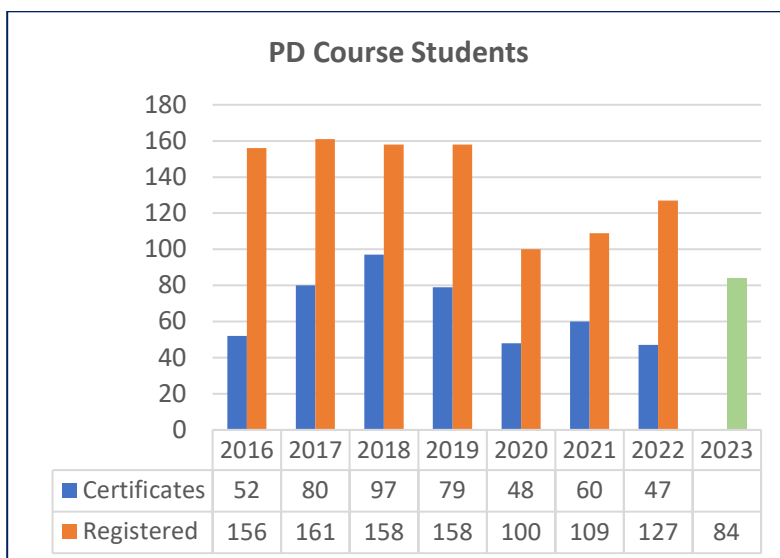
**Fully ungraded challenges: 0**

No reports :176

## VI. EDUCATION PROGRAMS

CMPT started offering its Professional Development Course in 2016. We consider the CMPT Professional Development Course an education tool for all laboratory personnel. Through this course, laboratory technologists can learn relevant and practical information about different clinical microbiology scenarios through the reading of the challenge critiques and completing online quizzes.

Since the course started, the course has had an average of 138 registered participants (Figure 1) representing almost all Canadian provinces and territories.



**Figure 1.** Number of students registered per year since the PD course started

In average, 66% of the students successfully completed all requirements for at least one of the 3 disciplines (Clinical Bacteriology, Mycology, or Enteric Parasitology). This allowed students to claim continuing education credits.

## VII. ACKNOWLEDGEMENTS

As a program in the Department of Pathology and Laboratory Medicine, University of British Columbia, CMPT acknowledges and greatly appreciates the on-going support of the following individuals as well as those acknowledges in the body of this report below:

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- Genevieve MacMillan, Director, Human Resources and Administration, Pathology
- Debbie Bertanjoli, Administration, Pathology
- The Donald B Rix Family Foundation

CMPT participates with the following organizations to provide EQA challenges and assistance for water bacteriology.

- Enhanced Water Quality Assurance (British Columbia Water Bacteriology Approval Committee)
- BCCDC Environmental Microbiology Laboratory
- British Columbia Ministry of the Environment

We are thankful for our laboratory and administrative staff, expert committee member volunteers, our medical advisory board and all of partners who provide critical materials and guidance.

CMPT thanks our partners at LifeLabs, DynaLIFE, APL, PLPHE, BC CDC, BC WC, NML, St Pauls and VGH for kindly providing precious samples and supporting sample characterization and QC processes.

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CMPT is grateful for all the support we receive from our committee members and committee chairs.

CMPT has technical expert committees for each of our main programs: Clinical Bacteriology, Virology Mycology, and Enteric Parasitology programs, and receive valuable guidance from our Water Program chair. Our new committee for Clinical Virology formed in September 2022.

END OF REPORT