



ANNUAL REPORT 2019 - 2020

Innovation • Education • Quality • Assessment • Continual Improvement

Clinical Microbiology Proficiency Testing

— Established 1982 —

Michael A Noble MD FRCPC, Chair and Managing Director
Esther Kwok BSc, RT, CLQM, Coordinator

ISO 9001:2015 Registration 2002

ISO/IEC 17043:2010 Accreditation 2015

ISO 9001:2015

ISO/IEC 17043:2010



ISO 9001



Certificate no. 3749.01

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CMPT QUALITY POLICY AND MISSION STATEMENT

Innovation, Education, Quality Assessment, Continual Improvement

- We, at CMPT, are a university based, peer directed program, that provides Innovative External Quality Assessment for microbiology laboratories providing services for public and patient health.
- 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 program.
- CMPT is committed to its Quality Management System, and regular review for continual improvement of its effectiveness.
- CMPT is committed to regulatory requirements of ISO 9001:2008 and ISO/IEC 17043:2010.
- The CMPT Quality Policy is the framework for the regular establishment and review of quality objectives.
- CMPT is committed to regular review of the Quality Policy to ensure its suitability to the program.



Michael A. Noble, Chair

September 2020

CMPT STAFF

The CMPT staff is committed to the highest standards of quality and professionalism. This dedicated team of administrative and technical staff provides support through all phases of the program.

Michael A. Noble, MD FRCPCChair and Managing Director
Esther Kwok, BSc, RT, CLQMCoordinator
Caleb Lee, MHA, BMLSc, CLQMHead Technologist
Veronica Restelli, MScEditor
Shadi Alami, MScTechnologist
Issa Mckinnon, B.A.Sc.Adm. Assistant/Technologist

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:

- Donald E. Brooks, PhD, FCAHS, Interim Head, Pathology (2019-)
- Genevieve MacMillan, Director, Human Resources and Administration

CHAIRMAN'S ANNUAL REPORT

CMPT Program

First created in 1983, UBC's Clinical Microbiology Proficiency Testing program has enjoyed over 35 years of experience and expertise while consistently living its mission statement of Innovation, Education, Quality Assessment, and Continual Improvement. This past year (April 2019-March 2020) CMPT continued in this long standing tradition. We again have the opportunity to look back with pride in our successes.

CMPT Staff

As the chair and managing director of CMPT, I am so impressed with the skill, talent, and effort of our staff. CMPT exists and is able to shine because of the strength of our collective team. CMPT is a sum greater than its parts because of the commitment to our program of Esther Kwok, our coordinator, Caleb Lee, our senior technologist, Veronica Restelli, our web manager, editor, and safety officer.

This year we have added on two people: Shadi Alami who has replaced Fion Yung as our technologist with special emphasis on our water program, and Issa McKinnon who has joined us as administrative assistant.

This was a particularly challenging year because of staff changes, which resulted in a number of short term part time persons filling in. Despite some of the inevitable gaffs and mis-steps, we were able to get through and stabilized, in large part, because of the dedicated commitment of our staff, for whom I am eternally grateful.

CMPT Volunteers

CMPT is grateful for all the support we receive from our committee members and Chairs. Without the committee members, it would be impossible for us to maintain our challenge selection process, our assessment system, and the high quality of our critiques and newsletter.

As always CMPT recognizes the valuable role that our committee members play. We receive the benefit of their time, knowledge, and expertise and all is greatly appreciated.

We have active committees for our Clinical Bacteriology, Mycology, and Enteric Parasitology programs, and receive technical assistance and advice from our Water Program chair. All members in all committees are actively involved in programmatic review and critique development. My appreciation goes out to all of them.

This year John Galbraith, MD FRCPC stepped down from the committee to allow time for other professional responsibilities. We thank John for all he has done with and for CMPT

Our committee renewal process will continue on a more regular basis, keeping in mind the importance of maintaining the right balance between experience and fresh ideas.

CMPT Quality Management System

Mission and Vision Statements

Innovation, Education, Quality Assessment and Continual Improvement.

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Each year, we have the opportunity to review our mission and vision statements. They have been stable and unchanged for many years, but they continue to be both operative and relevant to what we do and to what we continue to aspire. We see no need for change at this time.

Audits of the CMPT Program and Quality System

Internal Audits

Internal audits were completed by CMPT staff in February 2020. These audits are done to ensure our compliance with international standards, with one done consistent with ISO 9001:2015 and the other consistent with ISO 17043:2010. Some minor issues were identified that required addressing. All were successfully completed. These were done prior to our two external audits.

External Review

CMPT was successfully audited by SAI Global in March 2020. Our Quality System was recognized as being in compliance with ISO 9001:2015 (Quality Management – Requirements) with no nonconformities.

Additionally, in May 2019, we successfully completed our second cycle audit for compliance with the international standard ISO/IEC 17043:2010 (Conformity assessment -General requirements for proficiency testing) under the authority of the American Association for Laboratory Accreditation (A2LA). We were found to have no major concerns but did have 6 deficiencies and 3 observations. All were addressed, and our accreditation certificate was received. (Addendum: we are aware that ISO IEC 17043:2010 is about to undergo review and possible revision.)

Over the years, we have found immense value in our decisions 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 learned the skills 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 maintained our path forward towards continued innovation and development.

Review of Laboratory Safety

During the last 6 years CMPT has formalized its safety processes. We participate in the Department of Pathology and Laboratory Medicine Safety Committee. Veronica Restelli serves as our CMPT Safety Officer, and through that capacity she ensures that we are up to date in our requirements, performs our monthly monitoring, and keeps us informed of any potential concerns.

In addition to our planned Quality Management System internal audits, we complete 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. This year has been complicated with additional safety issues for COVID-19.

As mentioned in the review of our Quality System, CMPT is aware of a variety of useful and relevant standards for safety. As CMPT is a structure within the University of British Columbia Department of Pathology and Laboratory Medicine, we acknowledge the policies of UBC Risk Management as the principle foundation for CMPT Safety Policy.

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CMPT Resources

CMPT is provided sufficient laboratory space within the Department of Pathology and Laboratory Medicine. Through our activities and contracts, CMPT funds its programs, personnel, research and development that support our program and administrative needs. We appreciate the support we receive from Genevieve MacMillan, Department Director and Dr. Donald Brooks, Department Interim Head.

CMPT relies on the revenues generated through program registration for cost recovery. Over the past several years, as many Canadian provinces have undergone laboratory restructuring and consolidation, this has had an impact on some of our programs.

We have found alternate revenue streams, including active research and development to develop new and novel materials for our own programs and also through collaborating with other EQA programs and providing them with consultation assistance and in some cases samples. Our meeting ISO 17043:2010 standards has enhanced our ability to grow this additional resources arm, and allows us to support our growing staff, and to enhance our research and development programs.

In-house Training, Competency, Proficiency

During the last year we have gone through active training and competency assessment for Shadi Alami and Issa McKinnon. This process will continue to next year. All CMPT members, are required to regularly take and update courses in Safety, Transport of Dangerous Goods, Confidentiality and Privacy, some through UBC, some through external agencies.

Note: During the past year, CMPT had a temporary vacancy of our editor. We had access to two experienced editors, but despite training and communication, neither was able to meet our needs. In the absence our own staff took on the additional roles of editor, until her return in July 2020. I thank Esther and all our staff for taking on this extra burden. Of significance, our customers, who were aware of the added stress, were able to carry on without comment or complaint.

CMPT Annual Reviews

Review of Continuing Education for CMPT Staff

CMPT is committed to providing opportunities for our staff to participate in education opportunities. In part, this is covered through invited speakers at our Annual General Meeting, and, in part, through the open invitation to participate in our sister program the Program Office for Laboratory Quality Management fall conference. In addition, all CMPT staff are encouraged to take advantage of the programs that the university has to offer. This year UBC has created full and free access to LinkedIn Learning for all faculty and staff. Because of the crisis associated with the COVID-19 pandemic, all in-person conferences and courses have been cancelled.

Review of CMPT Quality System

Quality System

This year the review of our Strategic Quality Plan (SQP) and Quality Forms (SQF) resulted in some important changes.

As part of our Strategic Quality Plan review, several changes were incorporated this year. Our Quality Policy (SQP01) was revised to strengthen our statement of commitment to our staff.

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We refined several essential definitions (SQP002 Definitions) including defining both our paper and video challenges as EQA measurement tools. We clarified that we view all people of all professions working within the laboratories that we serve as our customers. We clarified that we seek the opinions of all our customers, and not only their laboratory management in our customer satisfaction surveys. We clarified that our Grading Guideline is a document intended for the use of all our volunteers while grading challenges. We clarified that our investigations to understand and address nonconforming events seek to determine all the probable causes that could lead to the event occurrence.

With respect to our Opportunities for Improvement (OFI), we clarified that all OFIs are recorded on our OFI Reporting Form, and that we expect staff to initiate investigations for causes and to report within 14 days of the event. We specified that the collected OFIs are reviewed twice a year in order to look for common causes and potential solutions.

Along with the clarification of our policy on OFIs, a new policy was created to define Management Review (SQP019) and another to define our vacation policy and how while it falls within the guidelines established by UBC, it ensures that there is always sufficient staff in order to get the work done (SQP035).

We believe these changes define a program that is timely and self-informing and allows us to keep abreast of OFIs as they come along.

OFI review for 2019-2020

During the program year 2019-2020, 31 OFIs were recorded; seven were described as External Errors that required correction, and an additional 12 were Internal Errors. The balance were Action Errors. One OFI was recorded as a consequence of the poor outcome resulting from the selection of an interim editor. In retrospect, we might have been able to save some grief had we insisted on a trial on software competency.

The single greatest process that has reported errors continues to be around the packaging and preparation of samples for shipping. In part this could be attributed to the addition of a new staff person, early in their training and experience. However, the overall impression is that our system is heavily weighted by having individual laboratories with very specific needs. This points to finding a better balance between allowing for customer flexibility and having the resources to meet all the requests.

In part, we have addressed this by hiring an administrative assistant whose task is to focus on shipping requirements. It is our expectation this addition will have a positive outcome over the next 12 months.

CMPT is aware of the careful balance between increasing programs and the benefits that accrue to customers and the program, and at the same time the potential risks of error that result from the increasing complexity.

Of significance, the recording of 31 OFIs in the previous year and 31 in the current year represents a substantial drop from 56 OFIs recorded in 2015-2016. I consider this downward direction in reported OFIs, as continued success in the action of our quality management system. We appreciate the support of our accreditation body (American Association for Laboratory Accreditation) and our certification body (Standards Australia International) for aiding us in our success.

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Review of Programs

Proficiency Testing

EQA is the core activity of CMPT. The changing landscape of medical laboratories in terms of size, number, and activity has stimulated us to be ever vigilant for 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.

Our programs currently include Clinical Bacteriology, Mycology, Enteric Parasitology, Molecular Screening for Enteric pathogens, *Clostridium difficile* toxin detection, *Trichomonas vaginalis* detection, Shiga toxin detection, Molecular Screening for MRSA, Group B Streptococcus, VRE, and Carbapenem Resistant Enterobacteria, and Acid Fast Bacteria detection.

Importantly, CMPT also provides proficiency testing program for water testing laboratories and provides EQA samples for 96 laboratories across Canada. This year, CMPT added a program for water containing sediment samples at the request of a participant laboratory. The water samples provided for laboratories are suitable to be analyzed by the laboratories' method of choice including 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.

Our organizational name, Clinical Microbiology Proficiency Testing, may be seem misleading because we focus much time and energy in providing samples for public health organizations. The name has international resonance, and we do not see the need to consider a name change at this time.

Sample Provider

Because of our international status by virtue of accreditation to ISO 17043:2010, and our other international activities, CMPT is regularly contacted to provide samples for EQA programs in other countries, or to provide samples for laboratories. While this is a small portion of our total activities, we tend to accept these requests, if we see them as consistent to our mission and vision of as a contributor to national and international Innovation, Education, Quality Assessment, and Continual Improvement.

International Training

CMPT has long recognized the importance of ensuring EQA proficiency based on realistic samples not only in Canada, but also in developing regions around the world. Over the last decade, we have provided educational PT training for delegates from more than 10 countries.

We have not had any visitors for extended training since 2014. However, in 2018-2019, working through our strategic partner, Oneworld Accuracy, Dr. Noble provided some limited EQA training on-site for the National EQA Program in Nigeria and also for the National Institute for Public Health Addis Ababa, Ethiopia, and assisted with the program in Jordan.

Discussions are currently underway for a possible new international candidates for the CMPT on-site program for 2021.

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Administrative Support

Because of our 37 years of experience and the excellence of our Quality system and developed logistics, CMPT provided administrative and logistic support to another UBC EQA program during its early years. Because this program is no longer part of UBC, CMPT no longer provides that service.

CMPT Professional Development Course

In 2014, CMPT proposed a program where laboratorians could receive continuing education credits for reading the critiques from our Clinical Bacteriology, Mycology, and Enteric Parasitology programs and answering an on-line quiz. The program was trialed during 2015 with about 50 people participating. A post trial survey indicated a very positive response from the participants that rated it as Excellent or Very Good and both Educational and Informative.

Following the survey, a decision was made to officially open the Professional Development Course in 2016. During the first year, the course had 156 registered participants. 98/156 completed at least one quiz, 52 participants completed at least one category (Clinical Bacteriology, Mycology, or Enteric Parasitology) obtaining a certificate for it.

In 2020, we repeated the survey for the 80 current participants (see below). Of the current participants, about a third have participated since (or prior to) 2016. The group is strongly positive of the program and continue to give high marks for the educational and informational value of the Professional Development Course.

In 2017, CMPT decided to open the registration to Microbiology residents and other individuals that might be interested. In 2019-2020, two residents were taking the course.

We consider the CMPT Professional Development Course a valuable education tool for all laboratory personnel.

International Proficiency Testing Participation

CMPT views the landscape of EQA, both national and international as an opportunity for collaboration for the betterment of healthcare and patient safety.

Dr. Noble was appointed as the Chair of the Microbiology Working Group for the European Committee for External Quality Assessment for Laboratory Medicine (EQALM) for 2015-2019.

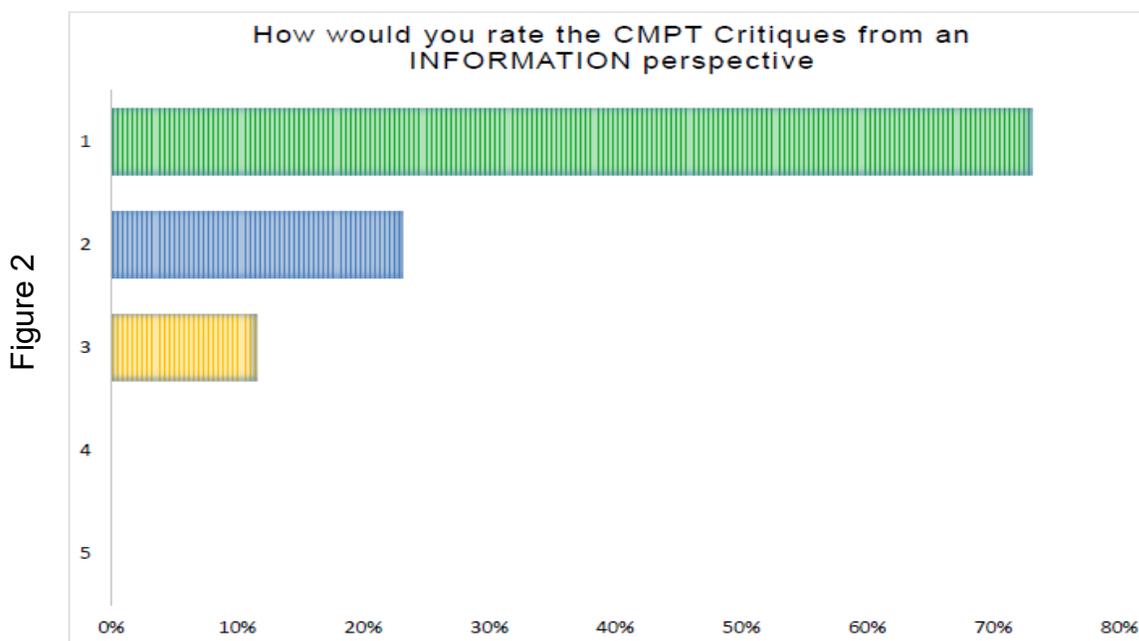
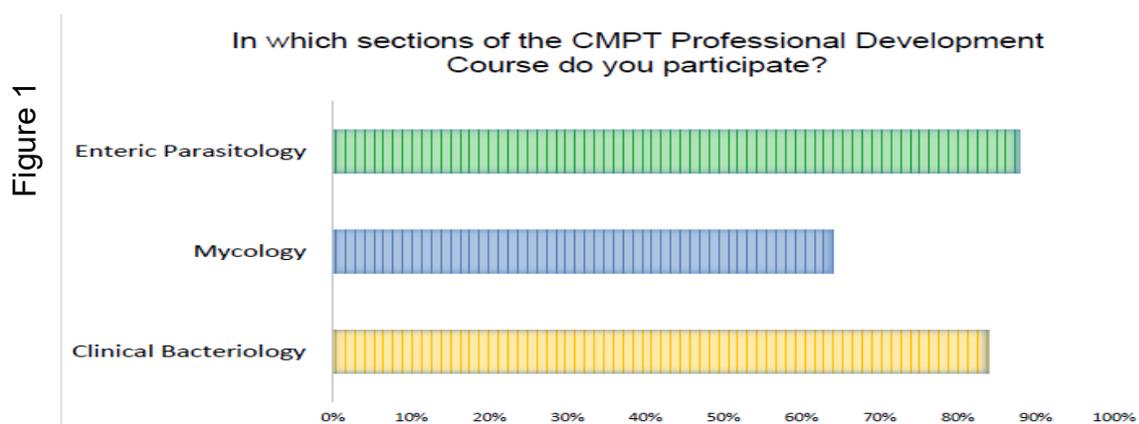
In 2018, the annual EQALM conference was held in Zagreb, Croatia. (Note: While EQALM is a European based international organization, EQA programs throughout Europe, North America, South America, and southern Africa participate in EQALM). Through EQALM, Dr. Noble has been able to develop survey studies on international laboratory performance, antimicrobial resistance, enteric pathogens, and clinical virology.

Although Dr. Noble stepped down from his position with EQALM, CMPT continues to be a member organization.

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CMPT Quality Indicators

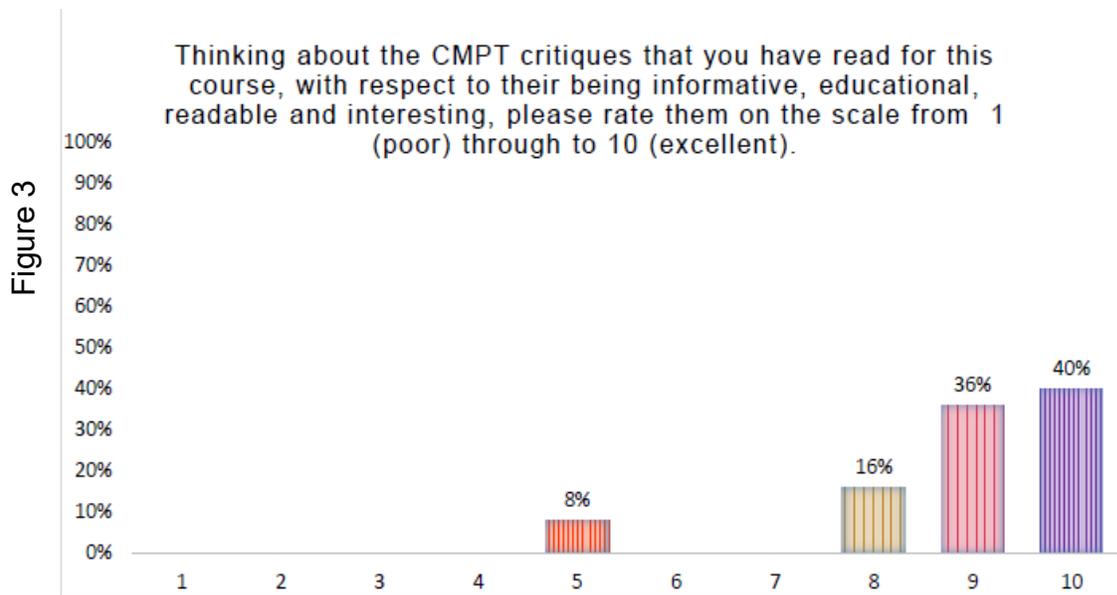
Customer Satisfaction Surveys



Answer Choices	Responses
1 I find lots of information in most or all critiques that is relevant to me as a laboratory professional	72% 18
2 Some critiques are a source of new and useful information, others less so.	24% 6
3 Some of the critiques provide some useful information. Generally acceptable	12% 3
4 The content of the critiques varies, but generally not very informative.	0% 0
5 It is rare that I find any new or useful information in the critiques	0% 0
Total respondents: 26	

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Overall the group rated the course and the critiques as of high value (92.4%) (Figure 3)



This year, CMPT looked at the satisfaction of the participants in the Professional Development course, For this reason, we view this survey to be both as a good survey of customers of the PD program, but also a good measure of the perceived value of our surveys,

Most respondents indicated that they participated in all three course categories: Clinical Bacteriology, Mycology, and Parasitology (Figure 1).

There was strong support for the informational value of the critiques (Figure 2). Based on this survey we believe that with respect to providing participants with educational, informative value, our participants support our efforts with high value.

CMPT Composite Satisfaction Score (CSS)

Each year, CMPT combines the information from the surveys with other factors (contracts, complaints, consultations) and derives a weighted composite score Customer Satisfaction. In the weighting negative comments, lost contracts and complaints are weighted greater than positive counterparts. We have been monitoring this indicator since 2002-2003 (17 years). A scale has been developed whereby great concern would result if we had a satisfaction survey with an approval score of 70 or if we lost one of more contracts as a result of dissatisfaction. A satisfaction score of greater than 90 or gaining three or more contracts would raise our composite score above 100 which we would take as evidence of excellence.

In 2019-20, CMPT had 2 new contracts (20), 2 contract renewals (+50) and 2 consultations (+10), we lost no contracts but had one complaint with a faulty slide container (-25). The approval rating for the satisfaction surveys was 92 (+920). In addition there were 12 free text positive comments (+60) and no

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negative ones (0). Our final score for the year was 103.5, just above our excellence score (greater than 102.5).

This is the highest composite score that we have recorded since 2002, and, importantly, is a progression since 2013-2014, (Figure 4) which is just before our first year of accreditation to ISO IEC17043:2010. In my opinion, the combination of certification to ISO 9001:2015 and accreditation to ISO IEC17043:2010 brings quality and customer awareness/satisfaction to front of mind.

Over time we have found that this score gives us a perspective on our performance, although we have observed some refinements would be appropriate. Because the same survey structure has been used for 17 years, we would not likely make any changes without considerable review and analysis. We anticipate that we will continue to complete 20 years of analysis.

Year	Fully Ungraded samples
2000-2001	0
2001-2002	3
2002-2003	3
2003-2004	3
2004-2005	3
2005-2006	3
2006-2007	4
2007-2008	3
2008-2009	1
2009-2010	2
2010-2011	0
2011-2012	0
2012-2013	3
2013-2014	0
2014-2015	0
2015-2016	0
2016-2017	0
2017-2018	0
2018-2019	0
2019-2020	0

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Fully Ungraded Samples

CMPT simulated samples may be ungraded for a variety of reasons, the most common being the laboratory reports the sample is one that is not normally processed (SNNP). On rare occasion, a simulated sample may be deemed inappropriate for grading because it was found contaminated or faulty after it was submitted. CMPT ensures that to some degree all samples have grading value, and monitors those samples that are fully ungraded.

In 2019-2020 there were no fully ungraded simulated samples.

Year	Graded Challenges	Appeal	Support request	Affirm committee
'2004-05	6378	11		
'2005-06	6378	21		
'2006-07	x	20		
'2007-08	x	31		
'2008-09	x	15		
2009-20	x	13		
2010-11	6067	15	6	9
2011-12	6726	13	2	11
2012-13	6325	x	x	X
2013-14	6300	17	6	11
2014-15	6013	17	6	1
2015-16	6013	9	4	5
2016-17	5008	1	0	1
2017-18	4829	2	2	0
2018-19	3506	2 (2 ungraded)	0	0
2019-20	4623	7 (1 ungraded)	2	4

Note: Paper Challenges and Video Challenges are not included in the analysis because they are for single purpose only and differ from simulated samples

Clinical Bacteriology Appeal Resolution

CMPT provides Clinical Bacteriology samples with the intent that they can be graded to indicate test performance competency. All results from all samples are graded by the full Clinical Bacteriology Committee and are assessed on a 4-point scale.

Participants can appeal the grading assigned by the Committee. In 2019-2020, there were 6 appeals and one comment. Two of the appeals were resolved in favor of the participants and the committee decided to maintain the grading in the other 4. The one comment was made on a Paper Challenge that had been deemed ungradable.

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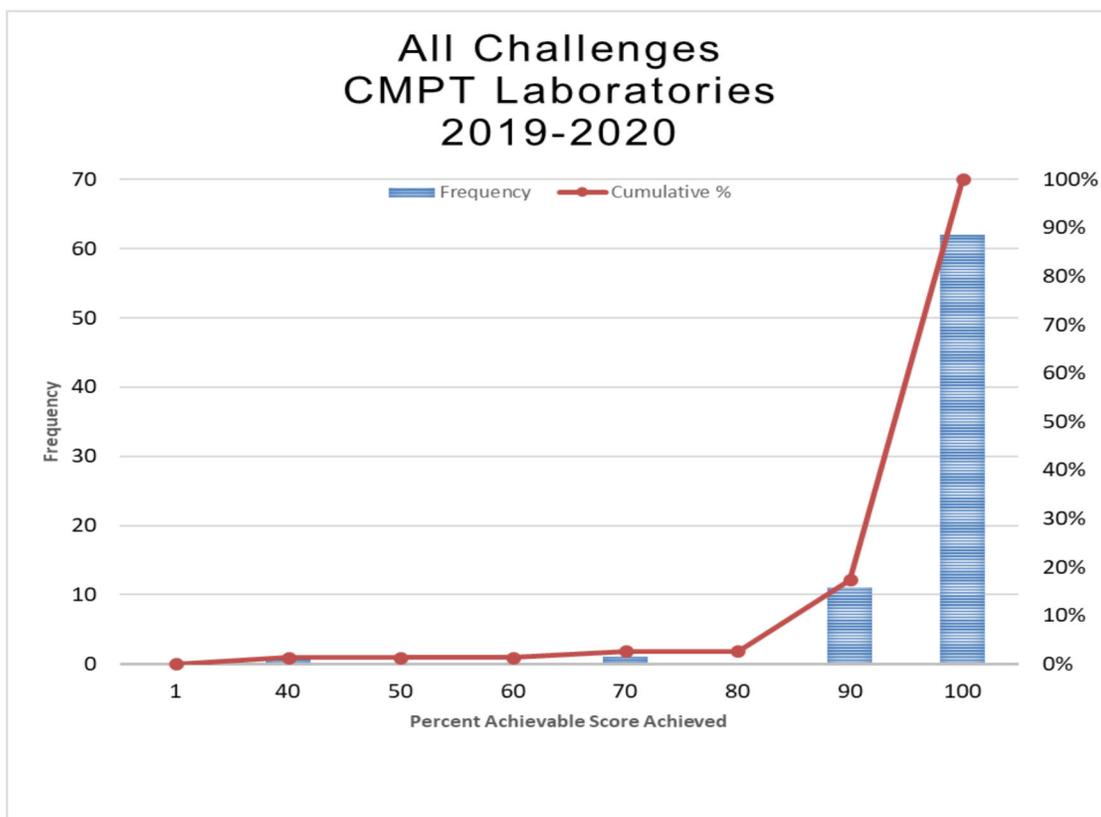
Participant Laboratory Performance 2019-2020

Clinical Bacteriology Samples submitted

In 2019-2020, CMPT provided a total of 4623 gradable samples to Clinical Bacteriology laboratories. Of these samples 3152 were graded and 1471(32%) were not; the predominant reason being that the laboratory reported the sample to be one they would not normally perform that sample (snnp) and thus assessing for competency would be unfair.

Antimicrobial susceptibility testing is the single test category with the greatest number of ungraded results (825 of 1719 challenges). The other cause for ungraded samples is the lack of consensus

Low Percent of Achievable Score Achieved	75
Mean Percent of Achievable Score Achieved	96
Median Percent of Achievable Score Achieved	98
High Percent of Achievable Score Achieved	100
Standard Deviation (Percent of Achievable Score Achieved)	5.59



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among reference laboratories (80%) or amongst the total group of laboratories (50%), which deems the sample as inappropriate for assessment.

With continual changing dynamics and complexities with clinical laboratories across Canada, antimicrobial susceptibility testing has become very difficult to grade. CMPT continues to provide samples for susceptibility testing assessment and provides education through the critiques even when the component is not graded.

In assessing laboratory performance (and its reflection upon CMPT as the sample provider), CMPT has adopted a threshold performance expectation that 90 percent of laboratories should achieve 90 percent of their achievable score as measured over all test events over 12 months. In 2019-2020, 83% of laboratories achieved a score of 90 percent or greater. CMPT does not correlate total percent of achievable score achieved with laboratory errors identified and reported by laboratories.

CMPT Presentations and Publications including www.CMPT.ca

As previously mentioned, CMPT website has become the program's primary communication centre for data entry, preliminary results, critiques, newsletters, and the annual report. During 2020, with the temporary absence of our editor, while our staff was able to maintain the creation and posting of our Clinical critiques and water testing results, CMPT Connections was postponed. With the return of our editor, we see a return to broader activities occurring.

Publications

1. POLQM Quality Conference- Laboratory Quality Management: Meeting the Needs Recording Laboratory Errors in BC: Vancouver BC October 24, 2019
2. POLQM Quality Conference- Laboratory Quality Management: Meeting the Needs Advancing Quality Education: Vancouver BC October 24, 2019
3. Noble MA. EQALM Survey/Study Performance of Laboratories on the recovery and identification of Clinical Virology. EQALM. Ljubljana, Slovenia. October 2019.
4. COVID-19 serology test claims 98.8% accuracy. The Dark Report. Volume 27, Number 9. June 1, 2020 (invited media)
5. Questions arise as FDA assesses serology tests. The Dark Report. Volume 27, Number 9. June 23, 2020. (invited media)
6. COVID-19 and all other lab test errors can have harmful consequences. Medicinematters.ca July 16, 2020 (invited media)

CMPT and Strategic Planning

CMPT continues to function consistent to its Mission and Vision statements. Our long term objectives continue as iterated in our Vision statement (see above). In order to continue to meet our expectations. The following issues have been identified that need to be addressed over the shorter term: (a) workload, (b) financial resources, (c) space, (d) sample supply chain, (e)partnerships, (f) research, and (g) committee structure. (See SWOT analysis for CMPT 2020-2025)

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Research

CMPT has, over the years, been able to engage in a continued program of internally funded research and development that has resulted in our being leaders in the production of clinically realistic challenge samples in bacteriology and toxin testing, mycology, and water bacteriology as well as paper and video challenges. A strategic decision was made to NOT engage in proficiency testing for COVID-19 because it was believed that the number of laboratories testing either by PCR or for antibody would be small and that there are other much larger organizations that would fill the need.

Following discussion, we started to work on samples for Food Microbiology in part because we believe we will be able to supply an existing customer with samples. We see this work as an extension of already existing programs. If successful, CMPT could be able to be on the market before 2022.

Succession Planning

Over the past several years, CMPT has had concerns about having an organized process to new management in order to ensure the continuity of CMPT as we go forward into the years to come. The Department of Pathology and Laboratory Medicine is supportive of a successor being in place and operative, before the end of 2021.

Succession planning is currently being actively being pursued for the chair position, however it is clear that is the immediate attention, successful planning will need to address all positions over the next intermediate time period. The vision of CMPT, within the Department of Pathology and Laboratory Medicine, is that it should be an essential cornerstone for laboratory quality for years to come.

Looking to the Future

As a direct consequence of the recognition of our ISO 17043:2010 accreditation, and our presence on the international stage, CMPT has been approached by new laboratories across Canada, Europe and Africa for new opportunities. Over the next year, we anticipate several new programs and opportunities occurring.

A Strategic Plan - Strengths, Weaknesses, Opportunities, and Threats (SWOT) - was developed in 2016. Consistent with ISO 9001:2015, the plan was developed to take into consideration both internal and external factors. The plan has been re-examined and updated in 2020 (see below).

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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.

GOALS and OBJECTIVES 2019 - 2020

P19_1	Complete Chairman's succession.	Active/ Near completion
P19_2	Continue with international collaborations with national and international partners.	Active
P19_3	Develop new provincial collaborations within British Columbia, including but not limited to BC Patient Safety and Quality Council	Active
P19_4	Seek new members for CMPT advisory committees, with special reference to Water Testing Laboratories.	Partial
P19_5	Integrate new personnel into CMPT Team	Successful
P19_6	Revisit SQP renumbering project	On Hold
Q19_1	Continue with ISO 9001 certification with ISO 9001:2015	Active
Q19_2	Continue with A2LA certification with ISO/IEC 17025:2010	Active
Q19_3	Develop a new SWOT analysis	Successful

GOALS and OBJECTIVES 2020 - 2021

Q20-1	<i>Develop Action Plans associated with the new SWOT analysis</i>	
Q20-2	Develop new collaborative activities with European EQA	
Q20-3	Complete R&D phase on Food Microbiology	
P20-1	Move forward to complete chair succession	
P20-2	Develop a Food Microbiology Customer base	
P20-3	Develop new opportunities for collaborations especially with BC agencies.	
P20-4	Explore developing an option for elective for Microbiology residents	
P20-5	Continue with Certification (ISO 9001:2015)	
P20-6	Continue with Accreditation (ISO/IEC 17043:2010)	
P20-7	Formulate the vision and strategy for next tier of succession planning	

CHAIRMAN'S ANNUAL REPORT

SWOT ANALYSIS for CMPT (2020-2025)	
Strengths	<p>Strong Support within the Department of Pathology and Laboratory Medicine UBC</p> <p>Strong, Effective, Capable, Professional Staff</p> <p>Effective and active program of Quality Management</p> <p>Strong support by customers as seen by satisfaction surveys and Composite Satisfaction Score</p> <p>Strong commitment to Innovation, Education, Quality Assessment, Continual Improvement.</p> <p>Strong network of collaboration partners</p> <p>Certification (ISO 9001:2015) and Accreditation (ISO IEC 17043:2010)</p>
Weaknesses	<p>Tendency to allow team to become overworked, increasing the opportunities for error</p> <p>Insufficient engagement and collaborations with other programs within the department and UBC.</p> <p>Insufficient engagement with laboratory medicine residents and with BMLSc</p> <p>Strong on practical R&D but not taking advantage of platform for academic research</p> <p>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>Have focused on replacement-by-need rather than replacement-by-planning.</p>
Opportunities	<p>Expanding network of EQA collaboration partners</p> <p>Expansion into other laboratory testing arenas (Food, Virology, and others)</p> <p>New opportunities with new leadership by 2022</p> <p>Direct connections with residents and graduate students within Pathology and Laboratory Medicine</p> <p>Link CMPT into opportunities for Capstone projects creating a student base and profile</p> <p>Continue to seek EQA programs wanting EQA Training</p>
Threats	<p>Strong capable team is aging. Need to be more effective in building up next generation.</p> <p>Consistent threat of continued laboratory mergers (megalab) and the potential impact on CMPT as a laboratory Quality Partner</p> <p>Unlikely, but still possible failure to complete succession plan in 2021</p> <p>Failure to continue with an active view towards Innovation, Education, Quality Assessment, Continual Improvement</p>



Signed Michael A Noble,
Chair, CMPT September 2020

COMMITTEE MEMBERS 2019 - 2020

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.

Water Microbiology Program

Chris Enick, BScElement, Surrey, BC

Mycology Program

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

Romina Reyes, MD FRCPCLifeLabs, Burnaby, BC

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

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Denise Sitter, ARTCadham Provincial Laboratory, Winnipeg, MB

Titus Wong, MDVancouver General Hospital, Vancouver, BC

Kathy Malejczyk, MD Regina Qu'Appelle Health Region , SK

CLINICAL BACTERIOLOGY PROGRAM

CMPT acknowledges, with appreciation, the valuable and essential advisory and technical support of the Clinical Bacteriology Advisory Committee. 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.

Only category A laboratories receive all samples, category C, and C1 laboratories receive samples according to their capabilities.

Participant Laboratory Performance 2019-2020

Clinical Bacteriology Samples submitted

In 2019-2020, CMPT provided a total of 4623 tests or challenge components to be evaluated to Clinical Bacteriology laboratories. Of these tests, 3152 were graded and 1471 (31.8%) were not. Reasons for not grading are either the sample or a component thereof was deemed not appropriate for grading because of lack of consensus, or because the laboratory declared they do not normally perform that sample (snp) and thus assessing for competency would be unfair.

Individual antimicrobial susceptibilities may have been ungraded because of disparities between reference laboratories. In 2019-2020, there were no rejected samples for Quality Control reasons.

In assessing laboratory performance (and its reflection upon CMPT as the sample provider), CMPT has adopted a threshold performance expectation that 90 percent of laboratories must achieve 90 percent of their achievable score as measured over four (4) test events over 12 months. If less than 80 percent of reference laboratories are unable to achieve an acceptable score or if 50 percent of the total group of laboratories are unable to achieve an acceptable score the sample is deemed as inappropriate for assessment.

Of graded challenges, 2997 (95.1%) were evaluated as acceptable. One hundred fifty five (155) or 4.9% were evaluated as sufficiently wrong, if they had been reported on a clinical sample, they would have been considered potentially unsafe for the patient.

In all key challenge groups, laboratories receiving CMPT challenges met the required level of ninety percent of laboratories achieving 90 percent of achievable score (see histograms).

About the histograms

All histograms have been converted to a single format, which is the 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".

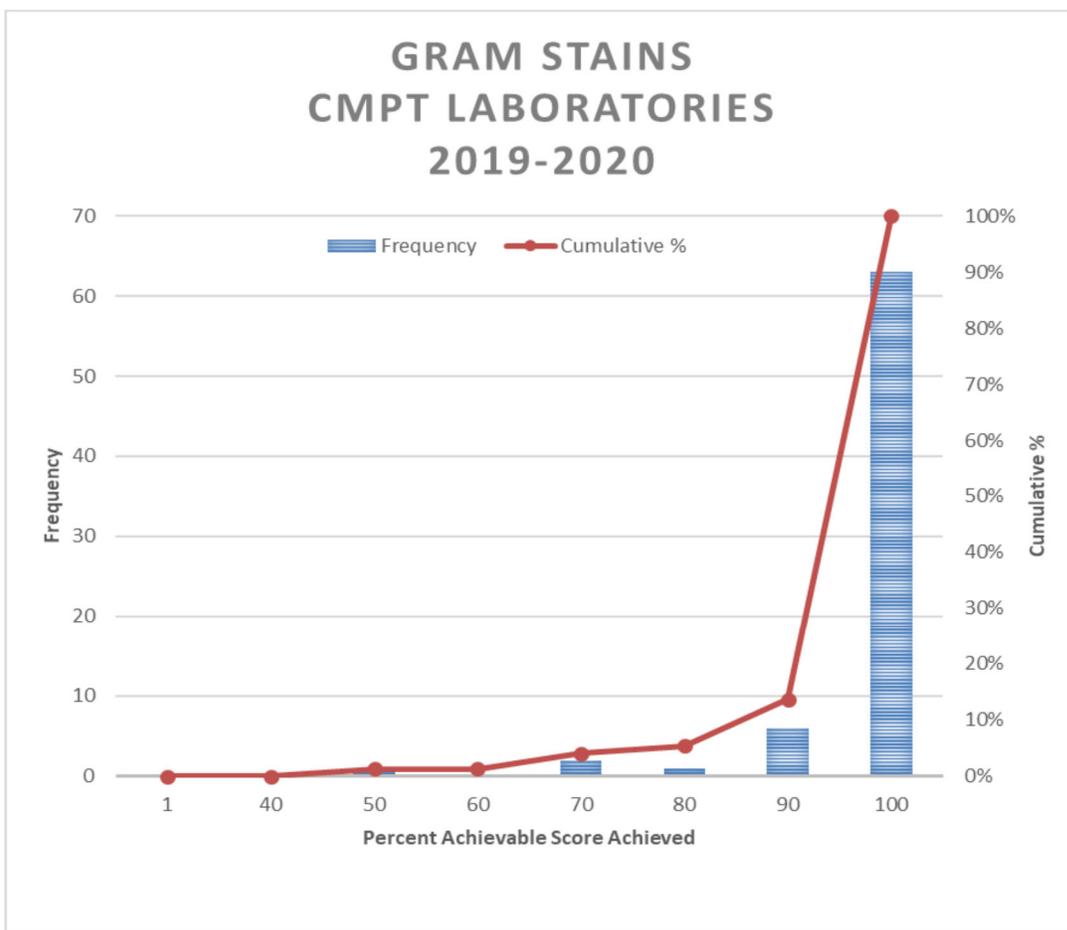
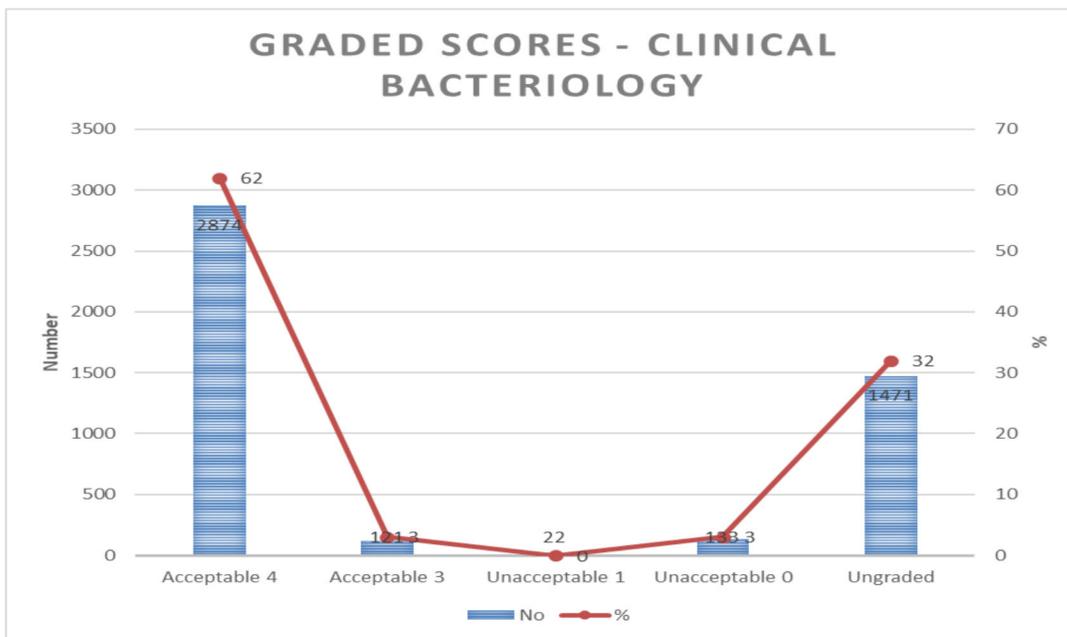
The total achievable score, that is the score the laboratory would have obtained if they received a grade of 4/4 for each graded challenge, was calculated. Challenges that were ungraded were excluded. The percent achievable score was calculated as (total achieved score/total achievable score) X100.

How to read the histograms

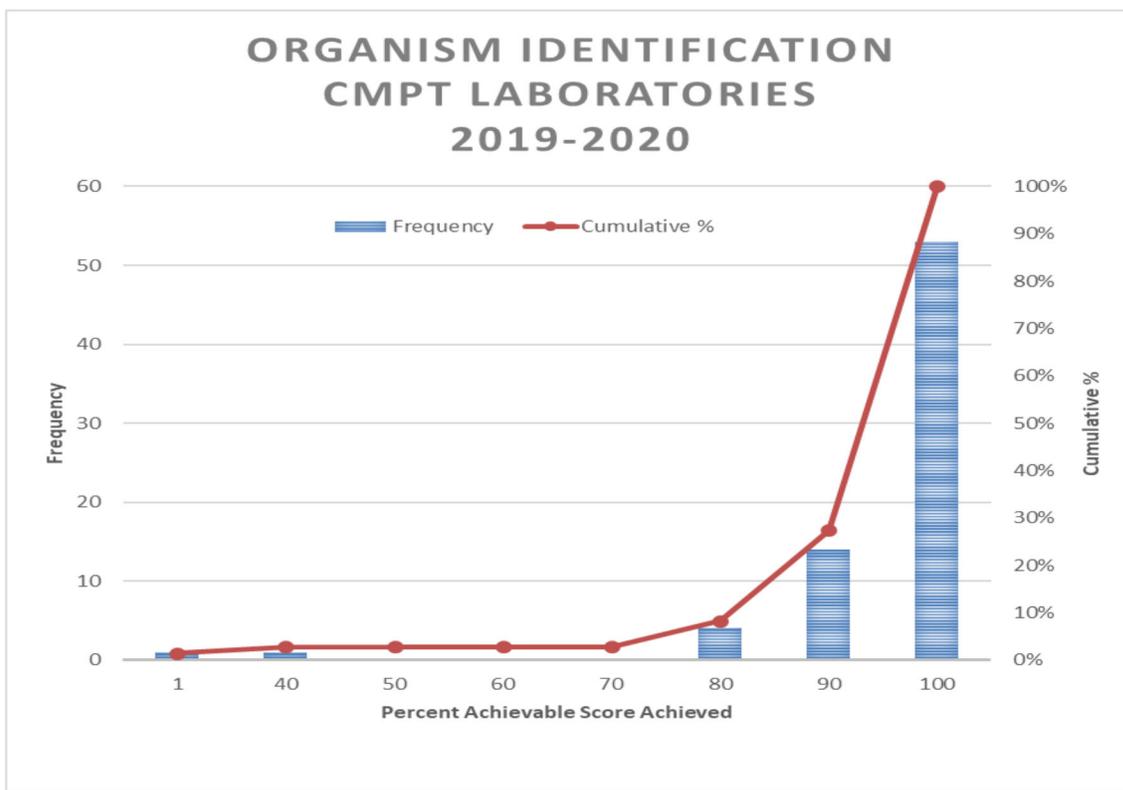
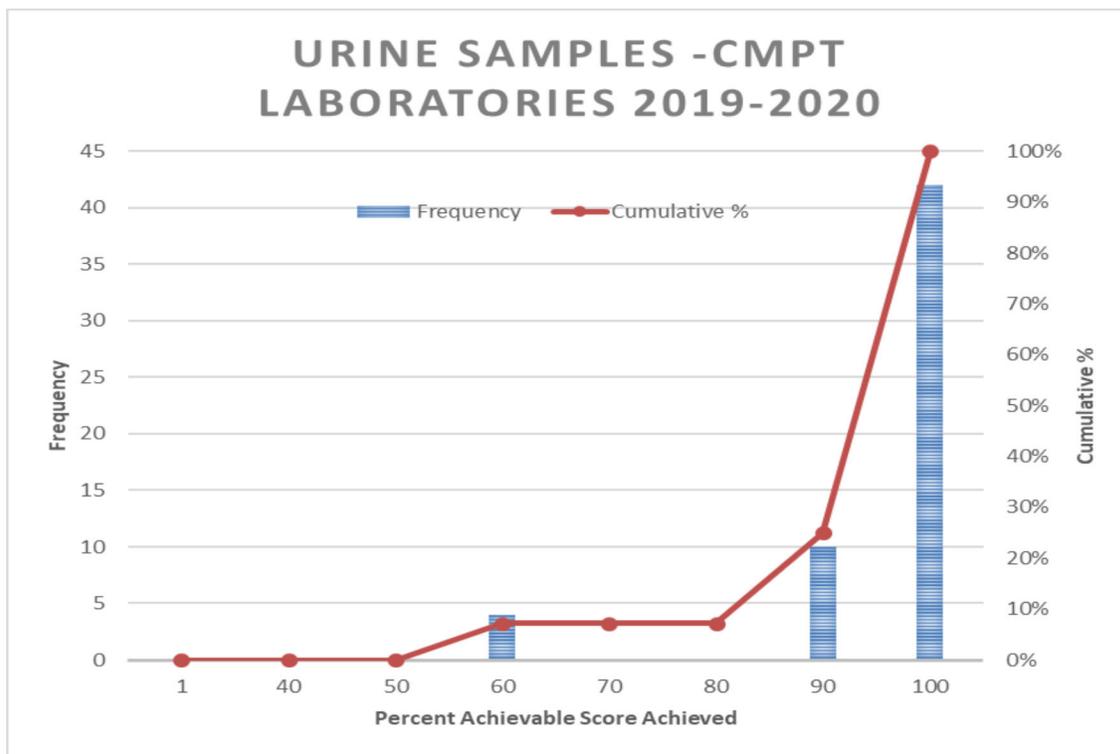
The number of laboratories achieving a specific grade is indicated by the height of the columns over the Percent Achievable Score, and is read on the LEFT side scale of the chart (frequency).

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.

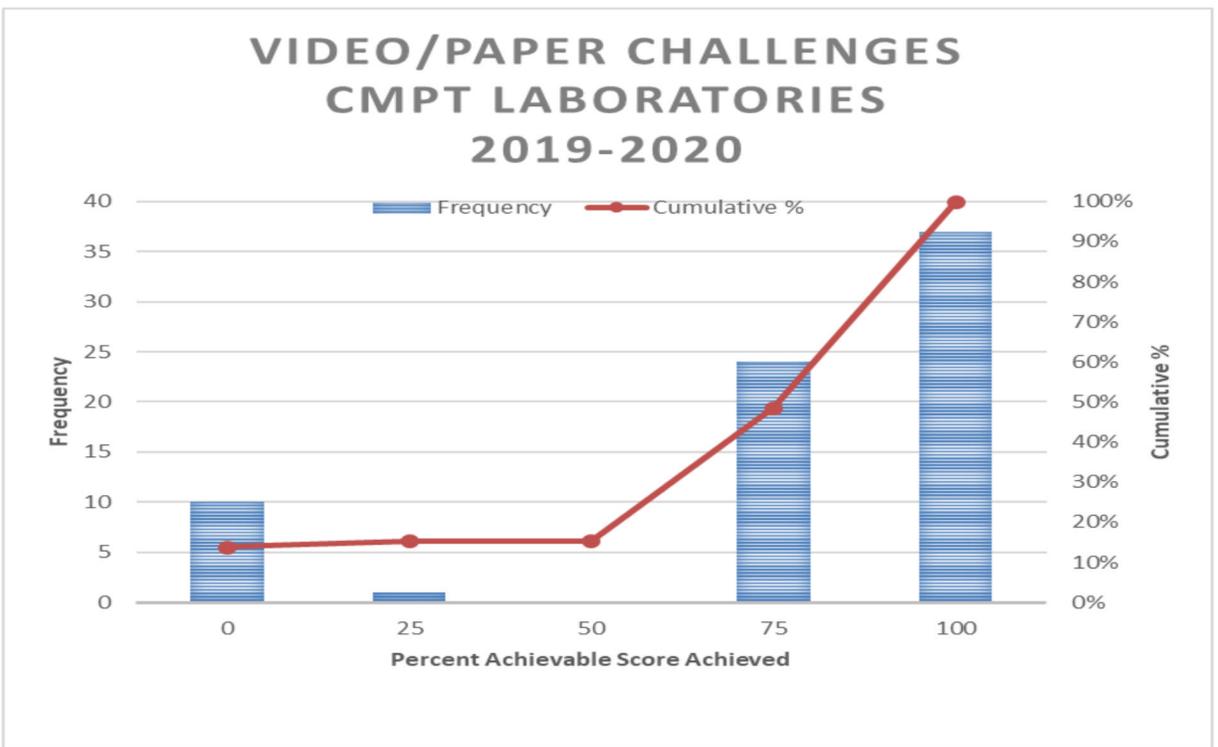
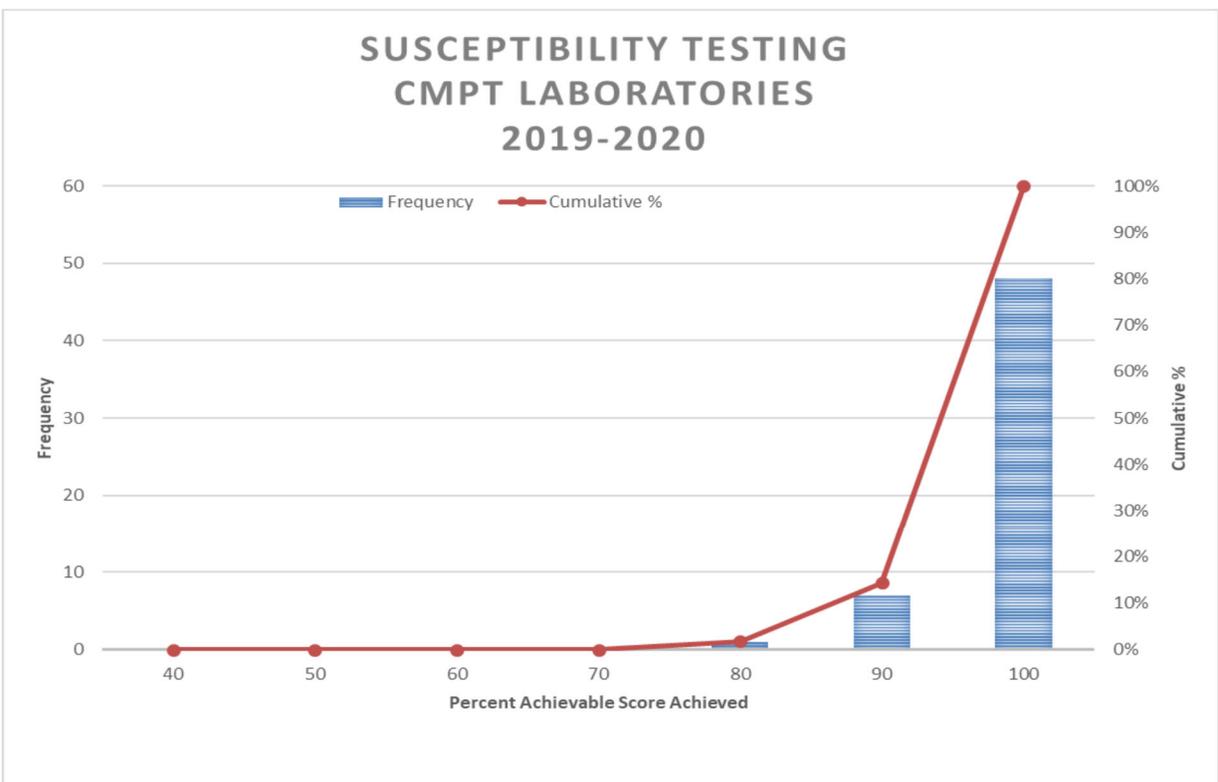
Clinical Bacteriology - Histograms 2019-2020



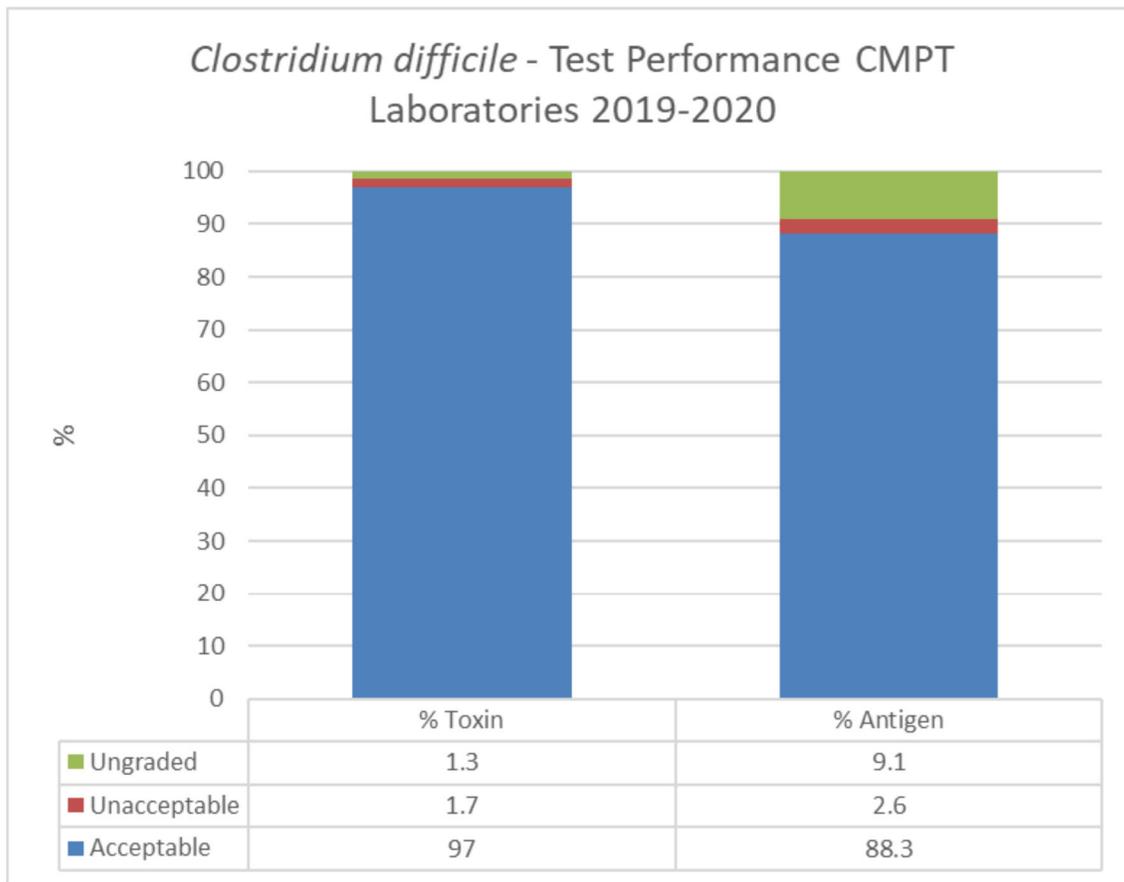
Clinical Bacteriology- Histograms



Clinical Bacteriology- Histograms



Clostridium difficile - Histograms



Clostridium difficile - Histograms

WATER MICROBIOLOGY PROGRAM

CMPT acknowledges with appreciation the valuable and essential advisory and technical support of:

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

CMPT participates with the following organizations to provide external quality assessment 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

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 2019 are shown in Table 1, Heterotrophic Plate Count program records are shown in Table 2, and the recreational water challenge records are show in Table 3.

WATER MICROBIOLOGY PROGRAM

Table 1: 2019 Drinking Water Bacteriology challenge record									
Date	Samples		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)
	No.	Organism	Total coliforms	<i>E.coli</i>	Total coli- forms	<i>E.coli</i>	Total coli- forms	<i>E.coli</i>	Total coli- forms/ <i>E.coli</i>
Apr 8, 2019	1	<i>Escherichia coli</i>	63/63/19	59/61/19	70/66	70/66	≥23/≥23	≥23/≥23	P/P
	2	<i>Enterobacter sp.</i>	53/56/24	0/0/0	57/57	0/0	≥23/0	0/0	P/A
	3	<i>Enterobacter sp.</i>	13/14/30	0/0/0	15/15	0/0	14/0	0/0	P/A
	4	<i>Enterobacter sp.</i>	12/11/38	0/0/0	12/12	0/0	15/0	0/0	P/A
Jul 8, 2019	1	<i>Enterobacter sp.</i>	38/38/27	0/0/0	38/38	0/0	≥23/≥23	0/0	P/A
	2	<i>Escherichia coli</i>	35/35/26	34/34/28	38/38	37/37	≥23/≥23	≥23/≥23	P/P
	3	No organisms	0/0/0	0/0/0	0/0	0/0	0/0	0/0	A/A
	4	<i>Escherichia coli</i>	15/14/35	15/14/37	15/14	14/14	14/12	14/12	P/P
Oct 28, 2019	1	No organisms	0/0/0	0/0/0	0/0	0/0	0/0	0/0	A/A
	2	<i>Enterobacter sp.</i>	14/14/23.7	0/0/0	14.3/15	0/0	11.5/9.2	0/0	P/A
	3	<i>Escherichia coli</i>	59/57/18.0	59/57/18.6	64.4/64	63.6/64	≥23/≥23	≥23/≥23	P/P
	4	<i>Escherichia coli</i>	29/28/24.3	29/29/25.2	30.2/28.5	29.4/27.5	21.2/23	21.3/23	P/P

Table 2: 2019 Drinking Water Bacteriology for Heterotrophic Plate Count				
Date	Samples		Group Mean/Median/MU%	
	No.	Organism	Total Count (cfu/ml)	MU%
Apr 8, 2019	1	<i>Enterobacter sp.</i>	100/91	29
	2	No organisms	0/0	0
	3	<i>Escherichia coli</i>	69/74	15
	4	<i>Escherichia coli</i>	192/194	25
Jul 8, 2019	1	<i>Escherichia coli</i>	70/71	26
	2	<i>Enterobacter sp.</i>	51/56	24
	3	<i>Escherichia coli</i>	108/117	28
	4	No organisms	0/0	0
Oct 28, 2019	1	<i>Escherichia coli</i>	110/109	16.0
	2	<i>Escherichia coli</i>	53.3/51	11.2
	3	<i>Enterobacter sp.</i>	150.5/50.5	7.0
	4	<i>Escherichia coli</i>	106.8/109	13.3

WATER MICROBIOLOGY PROGRAM

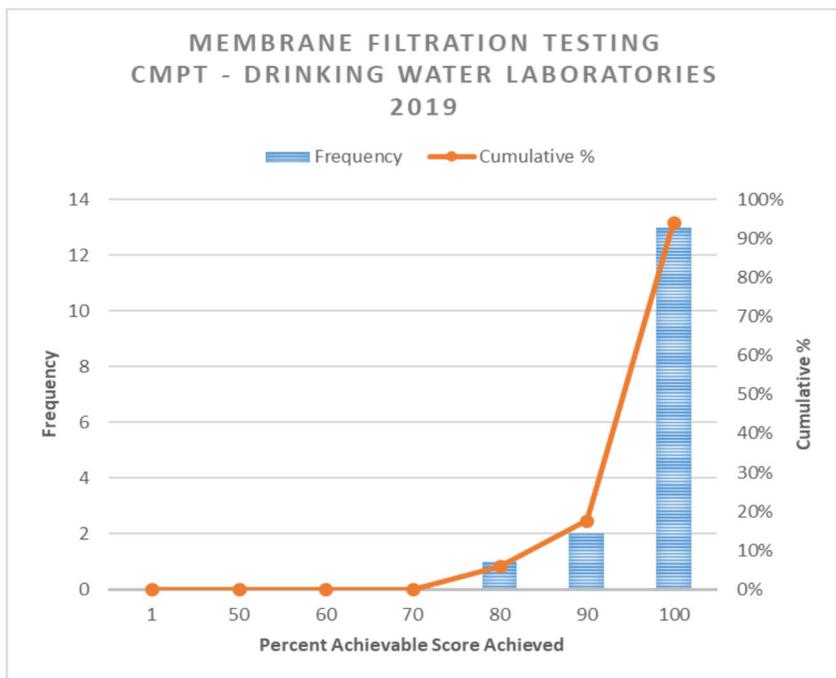
Date	Samples		Membrane Filtration mean/median/MU% cfu/100 ml	Enzyme Substrate mean/median MPN/100 ml
	No.	Organism		
Apr 8, 2019	1	<i>Pseudomonas aeruginosa</i>	145/164/35	154/167
	2	<i>Escherichia coli</i>	286/272/25	331/300
	3	<i>Enterococcus species</i>	314/322/21	287/261
Aug 19, 2019	1	<i>Pseudomonas aeruginosa</i>	235/222/27	224.3/228.2
	2	<i>Escherichia coli</i>	144/140/20	147.3/130
	3	<i>Enterococcus species</i>	148/154/20	110.8/126

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.

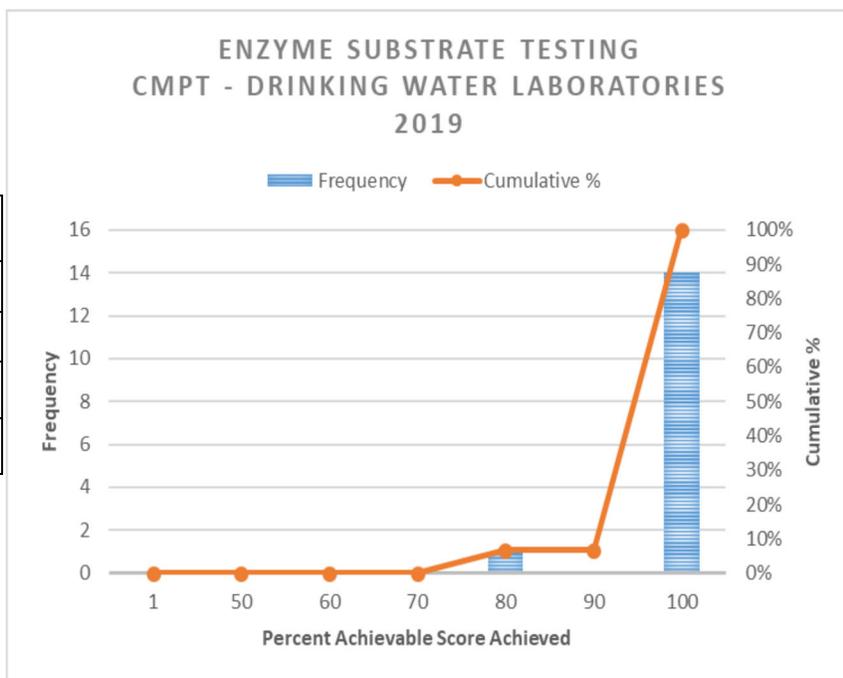
WATER MICROBIOLOGY PROGRAM



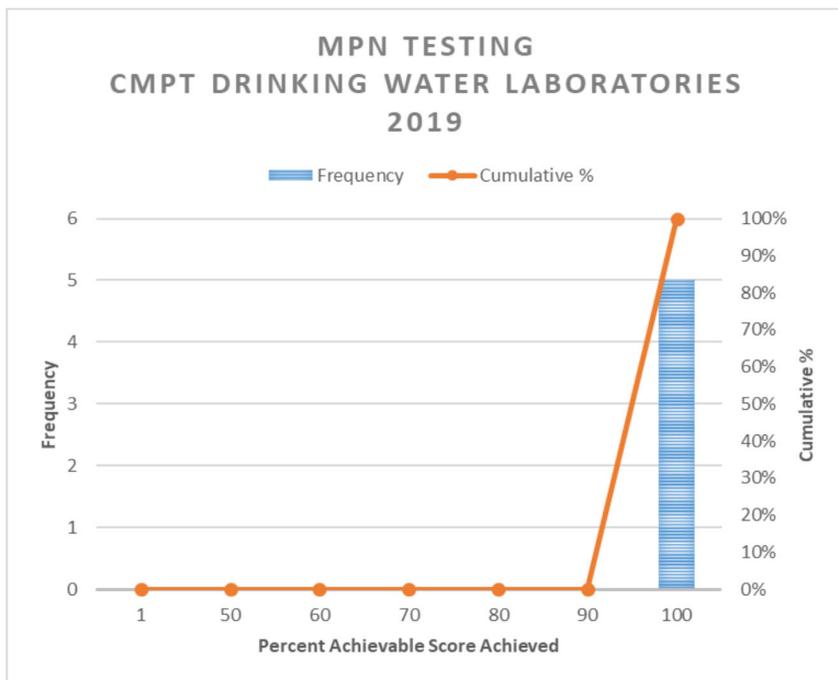
Drinking Water -Membrane Filtration method, 2019 (n=16)	
% Achievable	Cumulative %
80	5.88
90	17.65
100	94.12

Water Microbiology Program

Drinking Water Enzyme Substrate methods, 2019 (n=15)	
% Achievable	Cumulative %
80	6.67
90	6.67
100	100



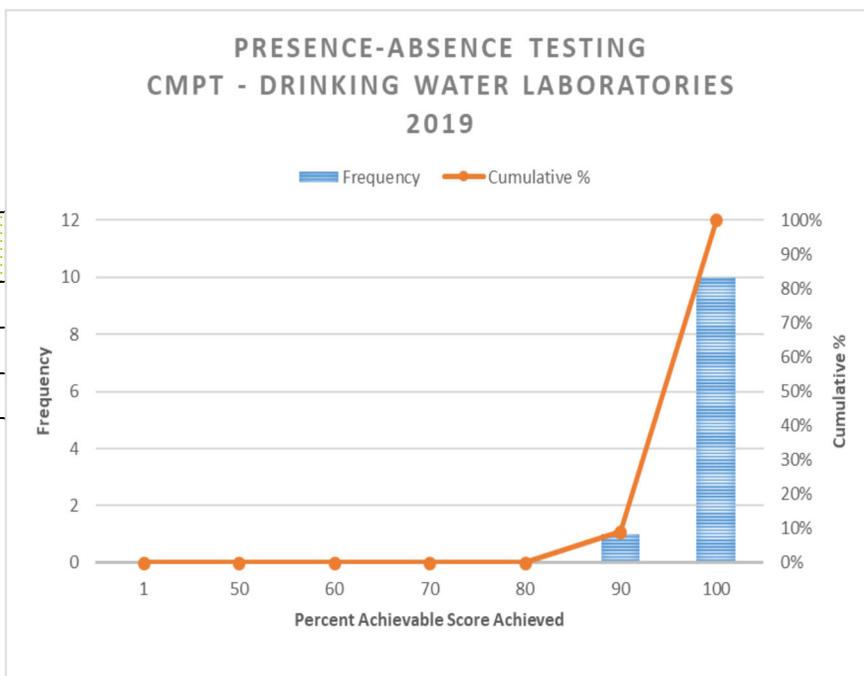
WATER MICROBIOLOGY PROGRAM



Drinking Water - Most Probable Number (MPN) method, 2019 (n=5)	
% Achievable	Cumulative %
100	100.00

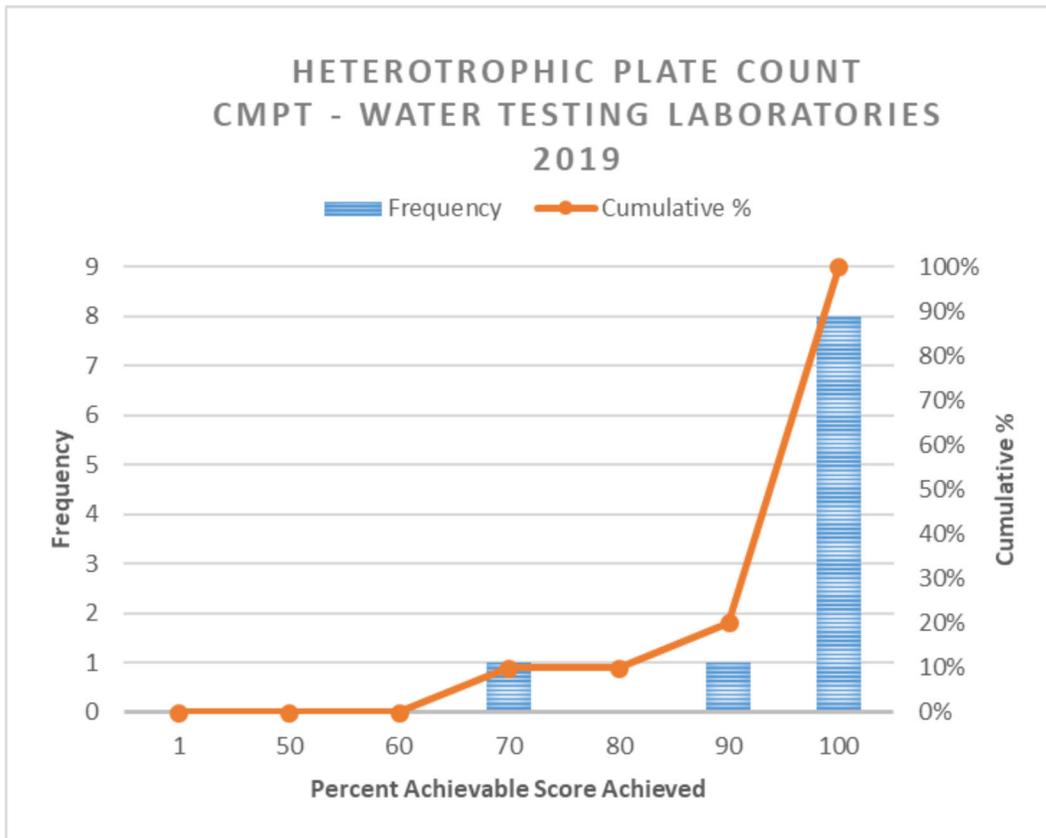
Water Microbiology Program

Drinking Water - Presence/Absence methods, 2019 (n=11)	
% Achievable	Cumulative %
90	9.09
100	100.00



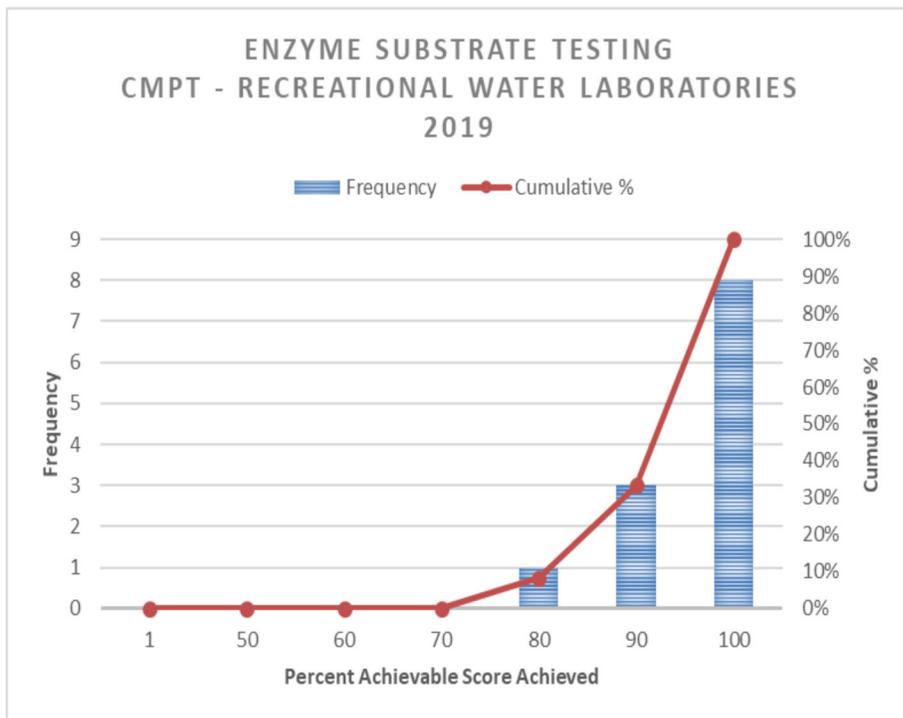
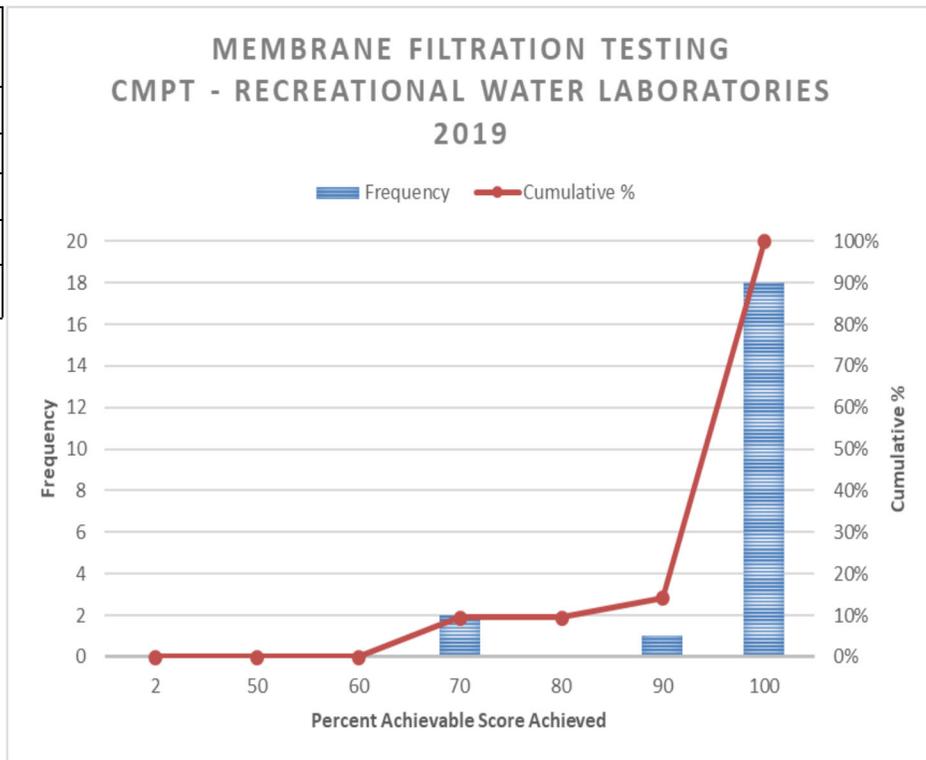
WATER MICROBIOLOGY PROGRAM

Drinking Water Performance Table for Heterotrophic Plate Count (HPC) method Table, 2019	
% Achievable	Cumulative %
70	10
80	10
90	20
100	100



WATER MICROBIOLOGY PROGRAM

Recreational Water - Membrane Filtration method, 2019	
% Achievable	Cumulative %
70	9.52
80	9.52
90	14.29
100	100.00



Recreational Water - Enzyme Substrate method, 2019	
% Achievable	Cumulative %
80	8.33
90	33.33
100	100.00

MYCOLOGY PROGRAM

CMPT acknowledges with appreciation the valuable and essential advisory and technical support of:

Robert Rennie MD FRCPC.....University of Alberta Hospital, Edmonton, AB

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

Brad Jansen BSc, MLT.....University of Alberta Hospital, Edmonton, AB

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.

Survey	Samples		Grades*			
			A	U	UG	
MY1904 April 2019	Fungal Smear (hyphae)	A	Negative	10	1	
		B	Negative	10	1	
		C	Negative	10	1	
	Yeast	1	<i>Candida dubliniensis</i> **	8	2	
	Dermatophyte	2	<i>Trichophyton rubrum</i>	9	1	
	Mold	3	<i>Scopulariopsis brevicaulis</i>	10		
MY1908 August 2019	Fungal Smear (hyphae)	A	Negative	11		
		B	Negative	11		
		C	Positive	11		
	Yeast	1	<i>Candida krusei</i>	10		
	Dermatophyte	2	<i>Microsporon audouinii</i>			10
	Mold	3	<i>Aspergillus fumigatus</i>	9		1
MY1911 November 2019	Fungal Smear (hyphae)	A	Positive	11		
		B	Positive	11		
		C	Positive	11		
	Yeast	1	<i>Candida auris</i> **	10		
	Dermatophyte	2	<i>Microsporum gypseum</i>	10		
	Mold	3	<i>Mucor</i> species	9	1	
Totals				171	7	11

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

**susceptibilities applicable

ENTERIC PARASITOLOGY PROGRAM

CMPT acknowledges with appreciation the essential advisory and technical support of:

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

Joan Tomblin MD FRCPC..... Royal Columbian Hospital, New Westminster, BC

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

Quantine Wong BSc.....BCCDC, Vancouver, BC

Enteric parasitology samples are actual clinical samples fixed in formalin solution; these samples are kindly provided by LifeLabs, DynaLife, PLPHE, and BCCDC .

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 2019 challenges.

Date	Sample	Parasite(s)	A*	U*	UG*
April 2019	PA1904-1	Schistosoma mansoni , Entamoeba histolytica/dispar , Blastocystis species , <i>Entamoeba hartmanni</i> , <i>Endolimax nana</i>	16		
	PA1904-2	Giardia lamblia , Blastocystis species , white blood cells	15	1	
	PA1904-3	No ova or parasites	16		
July 2019	PA1907-1	Blastocystis species	16		
	PA1907-2	No ova or parasites	16		
	PA1907-3	Entamoeba histolytica/dispar , Blastocystis species , <i>Endolimax nana</i> .	16		
September 2019	PA1910-1	Taenia species	14	1	1
	PA1910-2	No ova or parasites	14	1	1
	PA1910-3	Dientamoeba fragilis , Blastocystis species	13	2	1
Total			136	5	3

BOLD – pathogen **Blue** – potential pathogen

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

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 2019 challenges.

Date	Sample	Results	Acceptable	Unacceptable	Ungraded
April 2019	TR1904-1	Positive	36	0	0
	TR1904-2	Positive	36	0	0
	TR1904-3	Negative	36	0	0
	TR1904-4	Positive	36	0	0
July 2019	TR1907-1	Negative	36	0	0
	TR1907-2	Positive	36	0	0
	TR1907-3	Positive	36	0	0
	TR1907-4	Negative	36	0	0
September 2019	TR1910-1	Positive	35	0	0
	TR1910-2	Negative	35	0	0
	TR1910-3	Negative	35	0	0
	TR1910-4	Positive	35	0	0
Total			428	0	0

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 2019 challenges.

CMPT acknowledges, with appreciation, the essential advisory and technical support of Denise Sitter, Cadham Provincial Laboratory, Winnipeg, MB.

Date	Sample	Results	Acceptable	Unacceptable	Ungraded
May 2019	ST1905-1	gene and toxin negative	9	0	0
	ST1905-2	gene and toxin positive	9	0	0
	ST1905-3	gene and toxin negative	9	0	0
November 2019	ST1911-1	gene and toxin negative	11	0	0
	ST1911-2	gene and toxin positive	11	0	0
	ST1911-3	gene and toxin positive	11	0	0
Total			60	0	0

SCREENING AND MOLECULAR TESTING PROGRAM

CMPT launched the Molecular Proficiency Testing 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 Proficiency Testing Program to include carbapenem-resistant *Enterobacteriaceae* (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 2019 challenges.

Date	Sample	Results	Acceptable	Unacceptable	Ungraded/DNP	
April 2019	MRSA	MR 1904-1	positive	26		
		MR 1904-2	positive	26		
		MR 1904-3	negative	26		
		MR 1904-4	negative	26		
	VRE	VR 1904-1	negative	25		
		VR 1904-2	positive (van A)	23	1	1
		VR 1904-3	positive (van A)	24		1
		VR 1904-4	positive (van A)	22	2	1
	GBS	GB 1904-1	negative	30		
		GB 1904-2	positive	30		
		GB 1904-3	positive	30		
		GB 1904-4	negative	30		
	CRE	CRE 1904-1	positive	19		1
		CRE 1904-2	positive	19		1
		CRE 1904-3	negative	19	1	
		CRE 1904-4	negative	20		
Total			395	4	5	

MOLECULAR TESTING PROGRAM

Table 1. Screening and Molecular Challenges 2019 cont.						
Date	Sample	Results	Acceptable	Unacceptable	Ungraded/DNP	
August 2019	MRSA	MR 1908-1	negative	26		
		MR 1908-2	positive	26		
		MR 1908-3	positive	26		
		MR 1908-4	positive	26		
	VRE	VR 1908-1	positive	21	4	
		VR 1908-2	positive	22	3	
		VR 1908-3	negative	24	1	
		VR 1908-4	positive	14	11	
	GBS	GB 1908-1	positive	28	2	
		GB 1908-2	negative	28	2	
		GB 1908-3	positive	28	2	
		GB 1908-4	negative	27	3	
	CRE	CRE 1908-1	positive	18	2	
		CRE 1908-2	negative	19	1	
		CRE 1908-3	positive	19	1	
		CRE 1908-4	positive	19	1	
Total			371	33		
Year Total			766	37	5	

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 2019 challenges.

Date	Sample	Results	Acceptable	Unacceptable	Ungraded
April 2019	AFB1904-1	positive	6		
	AFB1904-2	negative	6		
	AFB1904-3	positive	6		
July 2019	AFB1907-1	positive	6		
	AFB1907-2	negative	6		
	AFB1907-3	negative	6		
September 2019	AFB1910-1	positive	6		
	AFB1910-2	negative	6		
	AFB1910-3	negative	6		
Total			54		

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 2019 challenges.

Date	Sample	Results	Acceptable	Unacceptable	Ungraded
April 2019	1904-1	<i>Vibrio</i> species			6
	1904-2	<i>Yersinia</i> species			6
	1904-3	<i>Salmonella</i> species	6		
	1904-4	<i>Campylobacter</i> species	6		
August 2019	1908-1	<i>Campylobacter</i> species	6		
	1908-2	<i>Shigella</i> species	6		
	1908-3	<i>Aeromonas</i> species	2	1	3
	1908-4	<i>Yersinia</i> species	4		2
Total			30	1	17